OCTOBER 19, 1935

THE LANCET

Offices: 7, ADAM STREET, ADELPHI, W.C.2.

Telegrams: LANCET, RAND, LONDON. Telephone: TEMPLE BAR 7228 and 7229.

No. XVI. OF VOL. II., 1935. LONDON, SATURDAY, OCTOBER 19, 1935 Pp. 128—Price 1s.
No. 5851. VOL. CCXXIX. Founded 1823. PUBLISHED WEEKLY. Registered as a Newspaper. Annual Subscription: Inland £2 2s. Abroad £2 10s.

OXFORD MEDICAL PUBLICATIONS

SEE PAGE 2

With 80 Illustrations. Demy 8vo. 9s. net; postage 6d.

INJURIES AND THEIR TREATMENT

By W. ELDON TUCKER, M.A., B.Ch., F.R.C.S., Surgeon at St. John's Hospital, Lewisham; Surgeon to the London Clinic for Injuries, &c.

With a Foreword by Sir HUMPHRY ROLLESTON.

"The subject matter of this volume should be familiar to every doctor."—THE LANCET.

London: H. K. Lewis & Co. Ltd., 136 Gower Street, W.C.1.

NOW READY.

WOMAN

AN HISTORICAL, GYNÆCOLOGICAL AND ANTHROPOLOGICAL COMPENDIUM.

By H. PLOSS & M. and P. BARTELS.

Edited by E. J. DINGWALL.

Crown 4to. With more than 1000 illustrations in black and white and seven colour plates. Buckram binding. Three volumes. Eight guineas per set.

Wm. Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

FRACTURES.

By MEURICE SINCLAIR, C.M.G., M.B., CH.B. (EDIN.). With an Introduction by Sir ROBERT JONES, Bt., F.R.C.S. Pp. 550. 337 X ray photographs, photographs and diagrams. 24s. net.

Constable & Co., Ltd., London.

THE TREATMENT OF ACUTE POISONING.

By H. L. MARRIOTT, M.D., M.R.C.P.

With Illustrations. 5s. net.

Published for the Middlesex Hospital Press by John Murray, Albemarle-street, W.1.

NOW READY. SECOND EDITION.

DISEASES OF THE RECTUM AND COLON

AND THEIR SURGICAL TREATMENT.

BY

J. P LOCKHART-MUMMERY,

F.R.C.S. ENG., M.A., M.B., B.C. CANTAB.,
Senior Surgeon to St. Mark's Hospital.

Pp. viii + 616, with 247 Illustrations. Price 35s.

Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

FOURTH EDITION. Completely revised. 10s. 6d. net.

TREATMENT OF DISEASES OF THE SKIN.

By KNOWSLEY SIBLEY, M.A., M.D., B.Ch. (Camb.).

London: Edward Arnold & Co., 41 and 43, Maddox-street, W.1.

PROGNOSIS.

VOLUME ONE

Price 10s. 6d. net (postage 6d. extra).

See page 9.

The Lancet Limited, 7, Adam-street, Adelphi, London, W.C.2.

FIVE STUDENTS' BOOKS.

STARLING'S PRINCIPLES OF HUMAN PHYSIOLOGY.

6th Edition. Revised by C. LOVATT EVANS, D.Sc., F.R.C.P., F.R.S. 562 Illustrations, 10 in Colour. 24s.

TAYLOR'S PRACTICE OF MEDICINE

14th Edition. Edited by E. P. POULTON, M.D., F.R.C.P. 64 Plates (12 Coloured) and 103 Text-figures. 25s.

APPLIED PHARMACOLOGY

By A. J. CLARK, M.D., F.R.C.P., F.R.S. *5th Edition.* 73 Illustrations. 18s.

DISEASES OF THE EYE

By Sir J. H. PARSONS, *C.B.E.*, F.R.C.S., F.R.S. *7th Edition.* 21 Plates, 20 in Colour and 353 Text-figures. 18s.

HALE-WHITE'S MATERIA MEDICA

22nd Edition. Revised by A. H. DOUTHWAITE, M.D., F.R.C.P. 10s. 6d.

J. & A. CHURCHILL LTD., 40 Gloucester-place, W.1.

THE NEW TEXT-BOOK

HARROW AND SHERWIN'S

BIOCHEMISTRY

See Saunders' Advertisement on Page 5

With 132 Illustrations. Demy 8vo. 15s. net; postage 6d.

CHEST DISEASE IN GENERAL PRACTICE

WITH SPECIAL REFERENCE TO PULMONARY TUBERCULOSIS

By PHILIP ELLMAN, M.D., M.R.C.P., Physician in charge of the Tuberculosis and Chest Clinic, County Borough of East Ham, &c. (*General Practice Series.*)

Foreword by Prof. S. LYLE CUMMINS, C.B., C.M.G., M.D.

"... the teaching is lucid and practical."—THE LANCET.

London: H. K. Lewis and Co. Ltd., 136 Gower Street, W.C.1.

DISEASES OF THE THYROID GLAND.

WITH SPECIAL REFERENCE TO THYROTOXICOSIS.

By CECIL A. JOLL, M.S., B.Sc., F.R.C.S. (Eng.).

Crown 4to. Fully Illustrated. £3 3s. net.

"Mr. Joll has presented his fellow practitioners and students with a monumental volume. They need not trouble to search the literature published up to the time this volume went to press, for they will find everything relevant within its covers."
—BRITISH JOURNAL OF SURGERY.

William Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

FOURTH EDITION, Revised and Enlarged, containing New Methods and Data.

CONTRACEPTION (Birth Control)

ITS THEORY, HISTORY AND PRACTICE.

By MARIE CARMICHAEL STOPES, D.Sc.,
Fellow of University College, London, &c.

520 pp., 10 plates. 15s. net. Postage 9d.

Putnam, 24, Bedford-street, London, W.C.2.

KEGAN PAUL

With 113 Illustrations, 21s. net.

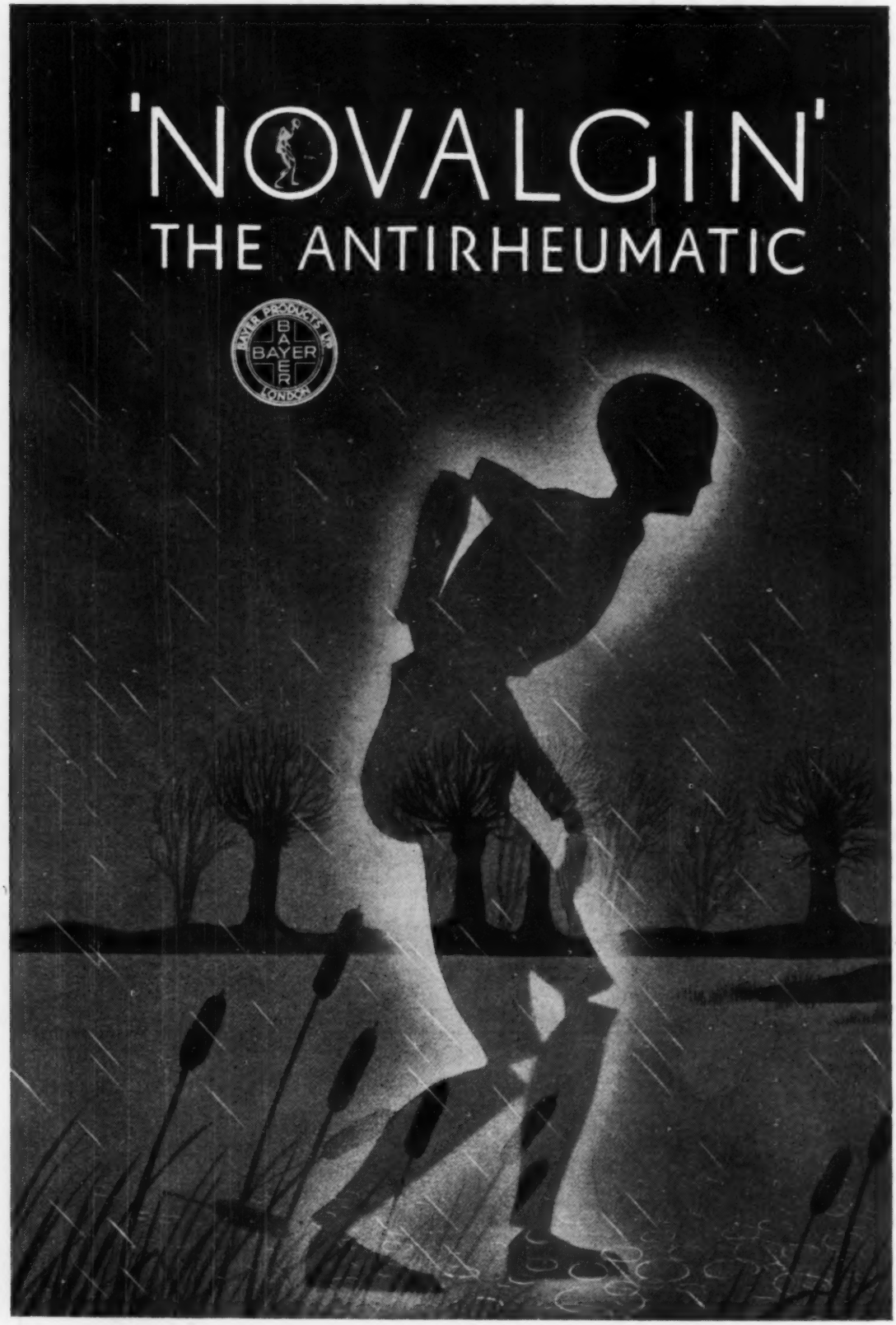
THE GENESIS OF CANCER

By W. SAMPSON HANDLEY, M.S. London, F.R.C.S., Surgeon to the Middlesex Hospital.

The problem of the causation of cancer has remained up to the present in almost complete obscurity. This book states the evidence for the main inference which has been forced upon the author by twenty-five years' clinical and histological work on cancer. The inference is that local lymph-stasis is a constant precursory factor in malignant disease, and may therefore be considered as its cause.

Papilloma is shown to be a product of blocking of the papillary lymphatics; the close relationship of papilloma to carcinoma thus finds an explanation.

A short chapter deals with the prevention of cancer in the light of the author's views upon its origin.



BAYER PRODUCTS LTD., AFRICA HOUSE, KINGSWAY, LONDON, W.C.2

OCTOBER 19, 1935

THE LANCET

A JOURNAL OF BRITISH AND FOREIGN MEDICINE, SURGERY, OBSTETRICS, PHYSIOLOGY, CHEMISTRY, PHARMACOLOGY, PUBLIC HEALTH, AND NEWS

No. 5851 LONDON, SATURDAY, OCTOBER 19, 1935 CCXXIX

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Bacteriæmia and Oral Sepsis. With Special Reference to the Ætiology of Subacute Endocarditis. By Prof. C. C. OKELL, F.R.C.P., and S. D. ELLIOTT, M.B.... 869

Acholuric Jaundice: The Serial Onset of Acute Blood Crises in an Entire Family. By ANGUS M. SCOTT, M.D. 872

Hodgkin's Disease in Natives of Nigeria. By E. C. SMITH, M.D.—(*Illustrated*)..... 874

Congenital Defect of the Sternum. By A. JORDAN, D.Sc.—(*Illustrated*) 877

Internal Pneumolysis: Results of 110 Consecutive Operations. By F. G. CHANDLER, F.R.C.P.—(*With Coloured Plate*) ... 879

Perforation of the Tuberculous Intestine in Pulmonary Tuberculosis. By D. B. ROSENTHAL, M.R.C.P..... 882

CLINICAL AND LABORATORY NOTES

Complete Inversion of the Uterus. By J. COOK, F.R.C.S. 884

"Idiopathic" Striæ Atrophicæ of Puberty. By F. PARKES WEBER, F.R.C.P.—(*Illustrated*) .. 885

Eunuchoidism. By E. H. CAPEL, M.R.C.P.—(*Illustrated*) 886

MEDICAL SOCIETIES

Hunterian Society: Challenge of the Chronic Sick 887

REVIEWS AND NOTICES OF BOOKS

Diagnosis and Treatment of Skin Diseases. By J. H. Swartz, M.D., and Margaret G. Reilly, R.N. 889

The Body and its Health. By Prof. Winifred Cullis, D.Sc., and Muriel Bond, M.Sc. 889

Materia Medica, Pharmacy, Pharmacology, and Therapeutics. By Sir William Hale-White, M.D. Revised by A. H. Douthwaite, F.R.C.P.... 890

Groedel's Röntgendiagnostik in der Inneren Medizin. By H. Lossen 890

Elementary Textbook of Anatomy. By H. E. Clark. Revised by Prof. J. Graham, F.R.F.P.S... 890

St. Bartholomew's Hospital Reports 890

LEADING ARTICLES

ARTIFICIAL PNEUMOTHORAX AND AFTER.... 891

BOVINE VACCINATION AGAINST TUBERCULOSIS. 892

HÆMOSTASIS IN HÆMOPHILIA 893

ANNOTATIONS

A Dangerous Drug 894

Aviation Medicine 894

Pulmonary Osteo-arthropathy 895

Hodgkin's Disease..... 895

Perspective in Medicine ... 896

British Ambulance for Abyssinia 896

The Prickly Psychologist.. 897

Spectra of Vitamins and Hormones 897

Hospital Services under the Local Government Act, 1929 897

Sir John M'Lennan, F.R.S. 898

"Ensol"..... 898

PROGNOSIS

LXXIII.—Prognosis of Non-Malignant Diseases of the Breast. By ERIC PEARCE GOULD, F.R.C.S. 899

POST-GRADUATE LECTURES

The Chronic Abdominal Invalid (Mr. C. Jennings Marshall, F.R.C.S.)..... 908

Pain as a Neurological Symptom and its Treatment (Dr. H. A. Dunlop)..... 909

OPENING OF THE MEDICAL SCHOOLS

Fear and Pain. By Sir W. LANGDON-BROWN, F.R.C.P. 911

SPECIAL ARTICLES

British Medical Association: Public Medicine and Medical Sociology: Racial Pressure Problems in the Pacific 900

Surgery: Prostatectomy—Carcinoma of the Colon 903

Neurology and Psychological Medicine: Psychoses of Adolescence... 905

The War Mentality: An Address to Statesmen... 907

Paris: The Surgical Congress 917

Ireland: Public Health Administration in Dublin 918

PUBLIC HEALTH

On the State of the Public Health—Pneumonia and the M.O.H. 913

Infectious Disease in England and Wales 914

CORRESPONDENCE

The Attitude of Surgery to Hæmatemesis (Dr. H. Letheby Tidy)..... 915

Proteolytic Enzymes in Cancer (Dr. W. E. Gye) . 915

Plaster Technique in Treatment of Fractures (Miss M. Forrester-Brown, M.S.) 915

Origin of Boils (Dr. A. Whitfield) 916

Treatment of Scabies (Dr. R. Eager) 917

Germicidal Properties of Mercury Preparations (Mr. W. C. Reynolds, D.Sc., and Mr. S. N. H. Stothart, Ph.D.)..... 917

PANEL AND CONTRACT PRACTICE

Dangerous Drugs.—Conflicting Tribunals.—A Complaint that Failed 920

THE SERVICES

Royal Naval Medical Service.—Army Medical Services.—Royal Army Medical Corps.—Royal Air Force.—Deaths in the Services 919

OBITUARY

Sir Frederic Conway Dwyer, M.D.—(*With portrait*)..... 919

MEDICAL NEWS

Roy. Coll. Surg. Eng..... 921

University of London 921

University of Dublin 921

University of Wales 921

University of Sheffield 921

Fellowship of Medicine.... 910

Welfare of Cripples and Invalid Children 912

Manfield Orthopædic Hospital..... 914

The Hygiene of Youth.... 914

Royce Research Fellowships 921

Roy. Fac. Phys. and Surg. Glasg. 921

St. John Clinic and Inst. of Physical Medicine.... 921

Semon Lecture 921

Chadwick Trust 921

Royal Dental Hospital ... 921

Royal Institution 921

Prize for Research in Rheumatism 921

Lectures for Parents..... 921

Midwives' Institute..... 921

Essex County Hospital, Colchester 922

Bureau of Hygiene and Tropical Diseases 922

Medical Missionaries in Abyssinia 922

Films for Nurses 922

Society for Relief of Widows and Orphans of Medical Men 922

Chelsea Clinical Society ... 922

War Memorial Hospital, Shooter's Hill..... 923

NOTES, COMMENTS, AND ABSTRACTS

The Quetta Earthquake... 925

Biology in Schools 925

Dr. (Bath) Oliver 926

Examination Papers Examined 926

A Useful Adapter.—(*Illustrated*) 926

Insurance against Prolonged Illness 926

New Preparations: Monotrean 926

Medical Diary 923

Appointments 924

Vacancies 924

Births, Marriages, Deaths 924

JOHN BALE, SONS & DANIELSSON, LTD.

BALE'S APPOINTMENT BOOK 1936. **An opening to a week.** Interleaved with ruled paper or blotting paper, post free 8s. Not interleaved, post free 6s. 6d.

THE TREATMENT OF VENEREAL DISEASE IN GENERAL PRACTICE. By THOMAS ANWYL-DAVIES, M.D., B.S.(Lond.), M.R.C.P.(Lond.). Post free 7s. 9d.

New Pocket Monograph.

THE EARLY DIAGNOSIS OF MALIGNANT DISEASE. By GEOFFREY KEYNES, M.A., M.D. Cantab., F.R.C.S. Eng. Post free 2s. 8d.

ALLERGY IN RELATION TO LYMPHADENOMA. By G. P. CHANDLER, M.D. (Camb.), M.R.C.P. Post free 11s.

"A careful bit of work and well worthy of publication in monographic form."—JOURNAL OF PATHOLOGY.

WILHELM CONRAD RÖNTGEN and the Early History of the X-Rays. By OTTO GLASSER. Illustrated. 32s. 6d. net; postage, inland 9d., abroad 1s. 6d.

"Dr. Glasser has brought together everything he could discover about Röntgen and the X-rays, including many curious comments."—LANCET.

SCHISTOSOMIASIS (BILHARZIASIS). By D. RAMESES GIRGES. With Foreword by ERNEST CARROLL FAUST, Professor of Parasitology, Dept. of Tropical Medicine, Tulane University of Louisiana, New Orleans. Post free: inland 23s. 9d., abroad 26s. 6d.

"Of great biological and clinical interest."—BRIT. MED. JOUR.

DIABETES MELLITUS. **Based on 15 years' clinical experience.** By T. H. OLIVER, M.A., M.D., F.R.C.P. Post free 3s. 10d.

"The book is worthy of study."—THE PRESCRIBER.

83-91, GREAT TITCHFIELD ST., LONDON, W.1

OXFORD MEDICAL PUBLICATIONS

HÆMOCHROMATOSIS

By J. H. SHELDON, M.D. (Lond.), F.R.C.P. (Lond.)

Hon. Physician to the Royal Hospital, Wolverhampton, and the Guest Hospital, Dudley; late Hunterian Professor, Royal College of Surgeons of England.

Contents include: Material—Frequency—Nomenclature—Clinical Features—Metabolism—Pathological Appearances—Nature of the Pigments—Chemical Analysis of the Tissues—Theories of the Disease—Mechanism of the Pigmentation with Hæmosiderin—Mechanism of the Symptoms—Pathogenesis of Hæmochromatosis—Bibliography—Index.

Pp. 394. 40 Illustrations. **25s.** net.

A New (Ninth) Edition of

CUNNINGHAM'S MANUALS OF PRACTICAL ANATOMY

Revised and Edited by J. C. BRASH, M.D., F.R.C.S.

Professor of Anatomy in the University of Edinburgh;

and E. B. JAMIESON, M.D.

Senior Demonstrator and Lecturer on Anatomy in the University of Edinburgh.

A special feature of this new edition of an established manual is the replacement therein of the B.N.A. by the anglicised version of the revision of that nomenclature which was adopted by the Anatomical Society at Birmingham in 1933, and is now accepted by all British teachers. A glossary is inserted to explain radical differences between the B.R. and the B.N.A.

Vol. 1. Introduction, Upper Limb, Lower Limb. Vol. 2. Thorax and Abdomen.
Vol. 3. Head, Neck and Brain.

Each volume **12s. 6d.** net.

A New (Fourth) Edition of

A COMPANION TO MANUALS OF PRACTICAL ANATOMY

By E. B. JAMIESON, M.D.

Pp. 681. Revised in accordance with the above. **12s. 6d.** net.

A New (Fourth) Edition of

BEESLY AND JOHNSTON'S MANUAL OF SURGICAL ANATOMY

Revised by JOHN BRUCE, M.B., F.R.C.S.E.

Tutor in Clinical Surgery, Royal Infirmary, Edinburgh; Assistant to the Professor of Clinical Surgery, University of Edinburgh; Formerly Demonstrator of Anatomy, University of Edinburgh;

and ROBERT WALMSLEY, M.B., Ch.B.

University Assistant and Demonstrator of Anatomy, University of Edinburgh.

Pp. 732. 187 Illustrations (72 in Colour). **20s.** net.

X-RAY INTERPRETATION

By H. CECIL H. BULL, M.A., M.B., M.R.C.P.

Physician and Hon. Radiologist, Royal Waterloo Hospital, London; Hon. Radiologist, Southend-on-Sea General Hospital.

Pp. 412. 280 Illustrations. **21s.** net.

A full range of Oxford Medical Publications may be seen on Stand No. 25 at the London Medical Exhibition

Oxford University Press

HUMPHREY MILFORD AMEN HOUSE LONDON, E.C.4

ADDRESSES AND ORIGINAL ARTICLES

BACTERIÆMIA AND ORAL SEPSIS

WITH SPECIAL REFERENCE TO THE ÆTIOLOGY OF SUBACUTE ENDOCARDITIS

By C. C. Okell, M.C., M.B. Camb., F.R.C.P. Lond.

PROFESSOR OF BACTERIOLOGY IN THE UNIVERSITY OF LONDON AND BACTERIOLOGIST, UNIVERSITY COLLEGE HOSPITAL; AND

S. D. Elliott, M.B. Lond.

DEMONSTRATOR OF BACTERIOLOGY, UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

THE following investigation owes its origin to certain observations made by T. Lewis and R. T. Grant on the relationship of congenital bicuspid aortic valves to subacute bacterial endocarditis. In an important paper[1] on this subject they bring forward evidence to show (1) that in an unselected series of 31 cases of subacute bacterial endocarditis 26 per cent. presented a congenitally bicuspid condition of the aortic valves and (2) that among those reaching adult life and possessing bicuspid aortic valves, 23 per cent. at least die of active endocarditis. From these data they develop the following almost unchallengeable argument:—

"The entry of organisms into the blood stream cannot be regarded as determining the disease, though it is a necessary link in the chain of events. The determining cause is the defective valve which in some way traps and holds the organisms once they have entered. From the standpoint of pathology the importance of the bicuspid valve group is that it indicates the frequence with which innocuous invasions occur amongst the general population. As infective endocarditis is responsible for death in but a very small percentage of adults generally, and as we can conclude that in these invasion of the blood stream is a common event,* we are forced to the further conclusion that such invasions are encountered in the great majority of instances without mishap. Relatively, the normally developed subject is highly immune to the disease, when he is compared with the bicuspid aortic subject, not because the organisms entering are of the wrong kind, not because they enter in insufficient numbers or possess insufficient virulence, not because appropriate general defences are called into play, but because his aortic valve presents no peculiar susceptibility to the lodgment and tenancy of organisms. The same line of reasoning minimises the importance of so-called primary foci of local suppuration in this group, as a cause of established endocarditic infection."

Our object has been to confirm by direct observation this hypothesis of what Lewis and Grant elsewhere in their paper refer to as an "almost physiological entry" of organisms into the blood stream of the average individual.

The Investigation

In searching for the ultimate source of the streptococci concerned in the production of subacute bacterial endocarditis, attention must inevitably be turned to the oral cavity. Practically all observers are agreed that the vast majority of endocarditis streptococci are of the salivary or *Streptococcus viridans* type. These abound in the mouth and its neighbourhood but are only found elsewhere in small numbers and under exceptional conditions; above all it is in conditions of oral sepsis such as pyorrhœa of the gums that this type of streptococcus is found in the greatest numbers.

*Meaning that it occurs in many adults.

BACTERIÆMIA FOLLOWING DENTAL EXTRACTIONS

Our first observations were made on the blood of patients undergoing extraction of teeth from both septic and clean mouths. It is admittedly not easy to classify the different varieties of oral sepsis. Gum infection and apical infection are rarely mutually exclusive conditions. We therefore divided the cases roughly into three groups, A, B, and C, shown in Table I.

The blood was examined for bacteria in 138 patients undergoing the operation of extraction of teeth. Ten cubic centimetres of blood were taken from the arm veins immediately before extraction, and another 10 c.cm. within five minutes after extraction. The blood was added to 1·2 c.cm. of 5 per cent. sodium citrate saline. Both samples of blood were usually taken while the patient was under the influence of a general anæsthetic—nitrous oxide, Evipan (intravenous), or ether.

TABLE I

Streptococcal Bacteriæmia Following Extraction of Teeth in 138 Cases

Case group.	Type.	Cases examined.	Result of blood culture after extraction.	Streptococcal colony counts. Average of aerobic and anaerobic cultures.				
				<1 c.c.	1–5 c.c.	6–10 c.c.	11–15 c.c.	>15 c.c.
A	Marked gum disease; multiple extraction.	40	30 + 10 − (75 % +)	5	17	2	2	4
B	Moderate gum disease; multiple extraction.	60	42 + 18 − (70 % +)	14	21	4	1	2
C	Without detectable gum disease; extraction of one or more teeth.	38	12 + 26 − (34 % +)	3	9	—	—	—

+ indicates that streptococci were present in the blood culture.
− indicates that no streptococci were present in the blood culture.
c.c. = per cubic centimetre.

Blood culture technique.—Each sample of citrated blood was distributed as follows. Two 1 c.cm. quantities were plated with 10 c.cm. agar in order to obtain a count of the viable organisms should the culture be positive. The remaining 8 c.cm. of blood was divided into two equal parts, each of which was added to 20 c.cm. of 0·1 per cent. sodium citrate broth. One blood-agar plate and one blood broth were then incubated aerobically at 37° C. for seven days; the remaining implants were incubated anaerobically at 37° C. for the same period. The aerobic cultures were inspected daily for the presence of bacterial growth; it was found that where the culture was positive, growth often first appeared on the third or fourth day of incubation.

It will be seen from Table I. that of 138 cases of dental extraction, 84 (60·9 per cent.) showed a transient streptococcal bacteriæmia after operation, and that in cases considered to be of a severe type of oral sepsis (Group A), the positive streptococcal cultures reached as high a figure as 75 per cent. In all cases where streptococci were recovered the organisms were of the non-hæmolytic type.

Table II. gives a comparison of the results obtained by aerobic and anaerobic methods of blood culture. In the majority of cases where the result was positive streptococci were recovered from the cultures grown under both conditions of cultivation, and in few instances were the organisms

TABLE II

COMPARISON BETWEEN AEROBIC AND ANAEROBIC METHODS OF BLOOD CULTURE

Case group.	Type.	Cases examined.	Result of blood cultures after extraction.		Streptococcal colony count.									
					<1 c.c.		1–5 c.c.		6–10 c.c.		11–15c.c.		>15 c.c.	
			Ae.	An.	Ae.	An.	Ae.	An.	Ae.	An.	Ae.	An.	Ae.	An.
A	Marked gum disease; multiple extraction.	40	27 + 13 − (67·5 % +)	26 + 14 − (65 % +)	6	5	13	9	5	5	3	1	—	6
B	Moderate gum disease; multiple extraction.	60	36 + 24 − (60 % +)	31 + 29 − (51·7 % +)	13	4	17	18	4	5	1	1	1	3
C	Without detectable gum disease; extraction of one or more teeth.	38	13 + 25 − (34 % +)	10 + 28 − (26 % +)	9	—	3	8	1	1	—	1	—	—

Ae. = aerobic. An. = anaerobic. c.c. = per cubic centimetre.
+ indicates that streptococci were present in the blood cultures, and − that no streptococci were present in the blood cultures.

found in the aerobic or anaerobic cultures only. None of the streptococci recovered were obligatory anaerobes.

In general, it was found that the occurrence and degree of a bacteriæmia depended upon the severity of the gum disease and the amount of damage done at the operation. Of 10 cases where one tooth was extracted and where there was no noticeable gum disease, only *one* gave a positive streptococcal blood culture after operation; this was one of removal of an impacted wisdom tooth. In 6 cases where two carious teeth were removed from an otherwise normal mouth, 2 gave a positive streptococcal blood culture after operation, the number of colonies growing being less than 1 per c.cm. of blood.

In 10 cases where a positive culture was obtained directly after extraction, a third specimen of blood was taken at a period varying from ten minutes to eight hours after operation. After these intervals the blood was always found to be sterile. The bacteriæmia following extraction is thus of very short duration.

Organisms other than streptococci found in the blood following extraction of teeth.—While in the majority of cases non-hæmolytic streptococci were isolated in pure culture, in 6 of the 138 cases already described (in which the blood was cultured before and after extraction of teeth), diphtheroid bacilli were found in the blood taken immediately after operation. In 3 of these cases the diphtheroid organisms were in pure culture while in the remaining 3 they were present with streptococci. In no case were these organisms present in the aerobic and anaerobic cultures at the same time; in 5 cases they grew aerobically and in 1 case anaerobically. Two of these cases showed no gum affection. In 2 further cases included in the series of 138, staphylococci were found in the blood taken after extraction. These organisms were of the *albus* type; once they grew in pure culture, while in the remaining case they were mixed with streptococci. In both instances they grew only in the aerobic cultures.

The isolation of staphylococci and diphtheroids, both found so commonly on the surface of the skin, is possibly but improbably to be ascribed to contamination.

PYREXIA FOLLOWING EXTRACTION OF TEETH

In 20 of the cases where teeth were extracted from patients with pyorrhœa, the temperature was taken at half-hourly intervals over a period of twelve hours following operation. In 14 of these patients some degree of pyrexia was found to occur four to nine hours after operation; the temperature usually rose sharply to a level between 99° and 102° F. and remained at this height for two to four hours, after which it fell abruptly to normal again. In 3 a third specimen of blood was taken during the pyrexial period, but in all it was found to be sterile although streptococci were found in the sample taken *immediately* after extraction of the teeth. In 3 of the cases where pyrexia was observed the blood culture immediately following extraction was negative, while in 3 where there was no rise in temperature a bacteriæmia immediately followed operation. Three further cases showed neither a positive blood culture nor pyrexia following operation.

These observations cannot be said to show any clear relationship between post-operative bacteriæmia and pyrexia. The time relationship, however, between the trauma, the bacteriæmia, and the pyrexia was very similar to that observed by Barrington and Wright [2] in connexion with catheter fever, and possibly bears the same interpretation as that suggested by these observers—viz., that the pyrexia follows the bacteriæmia at an interval similar to that which elapses between the injection of bacteria or protein into the circulation and the subsequent pyrexia (non-specific shock).

BACTERIÆMIA IN RELATION TO DENTAL SEPSIS

The most unexpected of our findings was that in 12 cases streptococci were isolated from a specimen of blood taken *before* operation. Of these, 9 were amongst the 100 cases of pyorrhœa referred to in Table I. (Groups A and B), streptococci being found both before and after extraction of teeth. The remaining 3 cases were from an additional 10 cases of pyorrhœa in which only one examination of the blood was made, that being before extraction. *Thus, among 110 cases of pyorrhœal disease, 12 (10·9 per cent.) were found to have a streptococcal bacteriæmia at the time of examination, irrespective of operative procedures.* In 5 cases there was a definite increase in the colony-count of the specimen taken immediately after extraction of teeth, in 1 case there was a diminution in numbers, and in 3 cases less than one colony grew per c.cm. of blood, both before and after operation, so that no change in degree of the bacteriæmia could be detected.

The blood of 2 of the patients was examined on two occasions, the tests being separated by an interval of a week. In both patients streptococci were found to be present in the blood on the second but not on the first occasion. In 3 of the 9 cases where streptococci were found in the blood both before and immediately after extraction, the blood

was examined again one to six hours after operation but was then always found to be sterile. It appears, then, that the inflammatory reaction following extraction closes down the field of absorption of organisms.

Organisms other than streptococci found in the blood before extraction of teeth.—In 6 of the 110 cases of pyorrhœal disease mentioned above, staphylococci were isolated in pure culture from the blood before dental extraction. All six were of a severe type of gum disease. Two of the six staphylococci were hæmolytic for horse blood, one being of the *aureus* type.

THE STREPTOCOCCI

Type of streptococci found in the blood before and after extraction of teeth.—All the organisms classed as streptococci were of typical morphology, showing long or short chain formation. None of the organisms isolated showed the appearances characteristic of hæmolytic streptococci when grown on the surface of horse-blood agar. The positive streptococcal cultures consisted mainly of organisms, surface colonies of which caused some degree of green discoloration of blood pigment, although in a few instances they were mixed with streptococcal colonies which had no observable effect.

The fermentation reactions of 36 of the streptococcal strains isolated were tested with lactose, mannitol, and salicin:—

16	fermented lactose only (*salivarius* type of Holman).	
9	,,	,, and salicin (*mitis* type of Holman).
1	,,	salicin only.
10	,,	neither lactose, salicin, nor mannitol.

The fermentation reactions of a similar number of streptococci recovered from the blood of patients with subacute bacterial endocarditis were as follows:—

10	fermented lactose only.	
9	,,	,, and salicin.
7	,,	salicin only.
5	,,	lactose, mannitol, and salicin.
1	,,	mannitol and salicin.
4	,,	neither lactose, salicin, nor mannitol.

Serology of streptococci recovered from the blood before and after dental extraction.—A detailed study of the serology of streptococci from cases of subacute bacterial endocarditis and their relationship to mouth streptococci will be the subject of a subsequent communication by one of us (S. D. E.). For the present purpose it will suffice to state: (1) that serological matches for streptococci isolated from definite cases of endocarditis are frequently found among streptococci derived from the gums and blood of patients undergoing dental extraction; (2) that in patients where streptococci were found in the blood after, or both before and after, extraction of teeth, organisms of a similar serological nature could in many cases be recovered from the gums; (3) that more than one serological type of non-hæmolytic streptococcus can usually be isolated from the gums of an individual patient; (4) that more than one serological type can sometimes be isolated from the streptococci found in the blood immediately following the extraction of teeth.

Control blood cultures from persons with apparently healthy gums.—Blood cultures have been made from 30 healthy young adults without obvious dental disease. These were all negative. It may also be noted as an additional control to the technique of blood culture that in none of the 38 cases shown in Table I., Group C, as having no detectable gum disease, were organisms found in the blood cultures *before* extraction.

Discussion

From time to time cases of subacute bacterial endocarditis are met with which follow the extraction of one or more teeth. The foregoing observations indicate the source and mode of infection in such cases. The transient bacteriæmia following operative trauma is analogous with that described by Barrington and Wright in catheter fever where *B. coli* was the usual organism isolated from the blood.

More interesting is the observation that in persons with severely septic mouths non-hæmolytic streptococci (mostly of the *viridans* type) may enter the blood stream in the absence of any obvious trauma. Owing to difficulties of access to patients our own observations on this point are very incomplete. We have been unable to ascertain whether the condition of "leak" into the blood stream in the positive cases is continuous, intermittent, or merely a fortuitous single occurrence. Nor have we yet determined whether minor degrees of trauma, such as brushing the gums or chewing, have any effect on the occurrence of the bacteriæmia. There are, however, certain implications from which it is difficult to escape. From the nature of the technique it is likely that many cases in which streptococci enter the blood stream were missed. The efficient mechanism which exists for clearing the blood stream of organisms of low virulence no doubt only allows a "leak" of organisms into the circulation to be detectable in blood from an arm vein when the "leak" exceeds a certain magnitude or the organisms are abnormally resistant to phagocytic clearing. The small percentage of cases in which this non-traumatic "leak" was observed probably gives an under-estimate of the risk of streptococci entering the blood of persons with severely septic gums. The bacteriæmia observed under these conditions is obviously not an infection of the blood in the ordinary sense but is rather a "leak" of relatively non-pathogenic organisms into the general circulation followed by their rapid removal by the phagocytic action of the body. It is generally admitted that damage or malformation of the valves is a frequent if not a necessary predisposing cause of subacute bacterial endocarditis. It is easy to imagine that the "leak" which is of little account in the normal person might determine the infection of diseased or malformed valves. At least the direct observation of such an invasion of blood as we have described provides a tentative explanation of how streptococci reach the heart valves in cases of subacute bacterial endocarditis and one in agreement with views which are widely held on theoretical grounds.

Summary

(1) Within a few moments after the extraction of teeth from obviously septic mouths, a transient streptococcal bacteriæmia lasting a few minutes may be observed in 75 per cent. of cases. (2) Even in patients with mouths showing no obvious gum disease, extraction of teeth is followed by a transient streptococcal bacteriæmia in 34 per cent. of cases. (3) Of 110 persons with septic mouths 10·9 per cent. were found to have a streptococcal bacteriæmia irrespective of any operative interference. These observations were based on the examination of the blood on a single occasion. (4) The organisms isolated from the blood in the majority of cases were streptococci of the *viridans* type which were culturally and serologically similar to strains derived from the mouth. (5) The possible bearings of these

observations on the ætiology of subacute bacterial endocarditis are briefly discussed.

This work was carried out by one of us (S. D. E.) during the tenure of a grant from the Harmsworth memorial fund. Our thanks are due to Mr. J. L. Dudley Buxton, Mr. A. J. Chiappa Sinclair, and Mr. Arthur Bulleid for their kindness in supplying us with suitable cases for investigation, and to Sir Thomas Lewis, who placed hospital beds at our disposal.

REFERENCES

1. Lewis, T., and Grant, R. T.: Heart, 1923, x., 21.
2. Barrington, F. J. F., and Wright, H. D.: Jour. Path. and Bact., 1930, xxxiii., 871.

ACHOLURIC JAUNDICE

THE SERIAL ONSET OF ACUTE BLOOD CRISES IN AN ENTIRE FAMILY

By Angus M. Scott, M.D. Glasg.

ASSISTANT PHYSICIAN TO THE VICTORIA INFIRMARY, GLASGOW

Since Minkowski [1] first drew attention to this interesting disease, the classical clinical signs of acholuric jaundice have been so well described, by Dawson [2] and others, that mere repetition would be tiresome if not presumptuous. But, as it is far otherwise when we come to deal with the pathogenesis of the condition, particularly the acute hæmolytic crises which not infrequently complicate the picture, a report of such crises occurring serially in all four members of an affected family is considered warranted.

THE FOUR CASES

I

A. B., a girl aged 11, was admitted to hospital on Feb. 22nd, 1934, in a severely collapsed condition.

History of illness (from mother).—On Feb. 19th the girl complained of headache, felt cold, shivery, and sick, but did not vomit. This continued for the next two days when she had no pain apart from the headache. On the 22nd she vomited once: the vomitus was bile-stained but contained no blood. She felt weak and giddy and fainted three times, complaining of visual disturbance when she recovered from these syncopal attacks. She had a motion of the bowels on Feb. 20th which appeared to be normal, and there had been no motion since then. The patient had always been pale but her mother thought that the pallor had increased during the past 12 months, following an attack of jaundice when she had been sick and vomited bile-stained fluid. She had a similar attack three years ago when she was jaundiced for three weeks.

No history of cough or spit, no urinary upset, and there had been no bleeding of any kind.

Condition on admission.—She was found to be a well-formed but rather thin girl with a mongoloid cast of countenance; definite but not marked jaundice of skin and scleræ. She looked pale, ill, and obviously very weak. Temp., 98·8° F.; pulse-rate, 132; resp., 28. The tongue was pale and dry but clean. Teeth were excellent and the fauces normal. The abdomen was symmetrical and moved freely, and there was no tenderness or rigidity. The liver was just palpable and the spleen was felt as a firm smooth tumour 3 inches below the costal margin, on deep inspiration. There was no swelling of lymphatic glands in any area. The heart sounds were poor in quality and a blowing systolic murmur was heard at all areas. Examination of the lungs and nervous system revealed nothing abnormal. Both fundi were pale but showed no hæmorrhages. The urine contained urobilin in excess but was otherwise normal. There was no melæna but the fæces were a deep brown due to excess of stercobilin.

Blood picture on admission.—Erythrocytes, 1,000,000; leucocytes, 7600; colour-index, 1; halometer reading, 6·4 μ; fragility was increased, the range being from 0·5 to 0·45, and the van den Bergh gave a negative direct but positive indirect reaction. Stained films showed anisocytosis and microcytosis, most of the red cells having the typical deeply stained bulging appearance. No reticulocytes were seen. Differential count:

Polymorphs .. 57 %	Eosinophils. 3 %	Large monos.. 5 %
Lymphocytes . 20 %	Basophils .. 3 %	Myelocytes .. 12 %

Course of illness.—During the next 48 hours the girl's condition became highly critical with increasing pallor, dyspnœa, and delirium. The temperature was 101° F., pulse-rate 140, and respirations 34, and in an effort to save her life she was transfused on Feb. 24th with 15 oz. of citrated blood. There was no immediate improvement in the clinical condition, but ten days later, while the jaundice was much more obvious, the pallor was less marked, although the child was still very ill and blood examination revealed no reticulocyte response. During the next four days her condition improved gradually and the spleen diminished pari passu with this improvement. Convalescence was slow and was interrupted on March 18th by an attack of perisplenitis accompanied by a sharp rise of temperature to 102° F. associated with acute pain over the enlarged spleen and audible friction.

The progress of the blood condition is shown in Table I.

TABLE I

Van den Bergh: +ve indirect on each date.

Date.	Hb.	R.B.C.	W.B.C.	C.I.	Reticulocytes.	Fragility range.
	(p.c.)	(millions)			(p.c.)	
Feb. 22	20	1,000	7,600	1·0	Nil.	0·5–0·45
,, 24			Transfusion.			
Mar. 5	46	2,300	8,000	1·0	20	0·65–0·45
,, 9	48	2,420	8,200	1·0	22	,,
,, 12	52	2,580	8,400	0·95	25	,,
,, 27	63	3,320	10,000	1·0	25	,,
Apr. 4	61	3,520	7,400	0·87	25	,,
,, 10	60	3,690	8,500	0·83	25	0·5–0·45

Hb. = hæmoglobin. R.B.C. = red blood-cells. W.B.C. = white blood-cells.

II

B. B., aged 9, sister of the first patient, was admitted to hospital on March 4th, 1934, as an urgent case of collapse with the following history. She had always been pale with a slight icteric tinge of skin and scleræ but had never been grossly jaundiced. Apart from this she had enjoyed good health and had missed very few days at school. On the morning of March 3rd, 12 days after her sister took ill, she looked pale and on rising from bed fainted and was unconscious for a short time. She fainted again in the evening and was very weak. Next day she felt slightly better but complained of headache and was very restless. This continued until the night of March 5th–6th when she became delirious and vomited continuously. Bowels had been regular and there was no evidence of gross melæna. No history of cold in the head or exposure to infection.

On admission she was found to be a well-nourished child for her age, definite greenish-yellow, or "daffodil," tinting of the skin and scleræ. Her temperature was 100° F., pulse-rate 152, and respirations 40 per minute. Her breathing was rapid and shallow and she was desperately pale. She cried out in her delirium and presented some of the features of the typhoid state. The tongue was clean and the teeth were good. The palatal arch was high and the mucous membranes very pale. The fauces were normal apart from the pallor. The liver was not palpably enlarged, but the spleen was just felt below the costal margin. There was no obvious enlargement of the lymph glands. A soft blowing systolic murmur was heard all over the precordium and a very short diastolic murmur was audible over the sternum. The pulse was small, soft, and rapid. The urine contained urobilin in excess and a slight trace of albumin.

Examination of the blood showed: erythrocytes, 820,000 per c.mm.; hæmoglobin, 16 per cent.; colour-index, 1; leucocytes, 11,000; halometer reading 6·3 μ; fragility range, 0·45–0·35; no reticulocytes were seen. Stained

films showed marked microcytosis, with well-stained red cells of globular shape; slight poikilocytosis. Many normoblasts and a few megaloblasts were seen. Differential count:

Polymorphs .. 72%	Eosinophils. 3%	Large monos.. 5%
Lymphocytes . 14%	Basophils .. 1%	Myelocytes .. 5%

Her serious condition calling for immediate transfusion, she received a pint of citrated blood, and showed an immediate and marked improvement: temperature 98·4° F., pulse-rate 102, respirations 20. Table II. shows the progressive improvement in the blood condition.

TABLE II

Van den Bergh: +ve indirect on each date.

Date.	Hb.	R.B.C.	W.B.C.	C.I.	Reticulocytes.	Fragility range.
	(p.c.)				(p.c.)	
Mar. 6 (A.M.)	16	820,000	11,000	1·0	Nil.	0·45–0·35
,, (P.M.)			Transfusion.			
,, 7	28	1,400,000	15,000	1·0	4	0·45–0·35
,, 12	48	2,200,000	29,000	1·1	7	,,
,, 21	50	2,500,000	14,000	1·0	10	0·65–0·45
,, 27	60	3,140,000	10,000	1·0	8	0·45–0·35

III

C. B., aged 5, a younger brother of the two previous patients, was admitted to hospital on March 11th, 1934, for observation in view of the experiences of his sisters. At birth, and for six months after, he had been jaundiced and had always been pale. He enjoyed fair health in spite of his pallor and has never again been noticed to be jaundiced. On March 8th, 15 days after A. B. and five days after B. B., he complained of feeling unwell. He felt tired and languid but had neither headache nor digestive upset.

On examination: Temp., 101·8° F.; pulse-rate, 140; resp., 28. He was found to be a small poorly developed boy, extremely pale, and with a slight icteric tinting of the skin and scleræ. He showed no cyanosis, œdema, or dyspnœa, but had a bright malar flush. Mentally he was very bright but rather nervous. Fauces were normal, but the palatal arch was high and his teeth were badly decayed. There was slight general tenderness over the abdomen without rigidity. The liver was not palpably enlarged, but an enlarged, smooth, firm spleen could just be felt. There was no obvious enlargement of the lymphatic glands. The pulse was regular in rhythm, rapid and of small volume and low tension. There was conspicuous precordial pulsation and soft systolic murmurs were heard at all areas. Nothing abnormal was detected in the respiratory or nervous system. The fundi were pale but showed no hæmorrhages. The urine contained an excess of urobilin and later an occasional faint trace of albumin.

TABLE III

Van den Bergh: +ve indirect on each date.

Date.	Hb.	R.B.C.	W.B.C.	C.I.	Reticulocytes.	Fragility range.
	(p.c.)				(p.c.)	
Mar. 11	23	850,000	4,200	1·3	2	0·45–0·35
,, 12	20	810,000	4,800	1·2	2	0·65–0·45
,, 13	18	800,000	5,000	1·1	2	,,
,, 14			Transfusion 10 oz.			
,, 15	25	1,500,000	10,000	0·83	10	0·45–0·35
,, 25	44	2,780,000	12,000	1·0	15	,,
Apr. 9	45	3,200,000	5,200	0·7	8	0·65–0·45

Blood examination showed: erythrocytes, 850,000 per c.mm.; leucocytes, 4200; hæmoglobin, 23 per cent.; colour-index, 1·4; halometer reading, 6·3μ; reticulocytes, 2 per cent.; fragility range, 0·45–0·35; van den Bergh indirect positive. Films showed microcytosis, macrocytosis, and an occasional normoblast.

Hepatex P.A.F. was given intravenously for the next two days but as anticipated there was no improvement in the blood picture or the clinical condition, and again transfusion had to be resorted to on March 14th when he received 10 oz. of citrated blood. Table III. shows the subsequent improvement in his condition.

IV

On March 15th D. B., a boy of 7, and the last member of the family, was, like the previous patient, admitted for observation and investigation. He had always enjoyed fair health, had never been noticeably jaundiced, and had taken a very active part in all the games at school. Recently his mother had noticed that he was short of breath on slight exertion and his colour was not so good. On March 12th, four days after his younger brother, he was obviously tired and listless but made no complaint.

On examination he was seen to be a well-developed but pale boy with a slight icteric tingeing of the skin and sclerotics. There was no cyanosis, œdema, or glandular enlargement. Tongue was clean, teeth good, and nasopharynx normal. The liver was not palpably enlarged and the tip of the spleen could just be felt below the costal margin, being smooth and firm and not tender. The pulse was regular in rhythm, of low volume and poor tension. The heart sounds were of fair quality, but a loud blowing systolic murmur was heard all over the precordium and of maximum intensity at the base. Respiratory and nervous systems were apparently normal. On admission his temperature was 98·4° F., his pulse-rate 128, and his respirations 28 per minute. His urine contained urobilin in excess and his fæces had the usual "cocoa powder" reddish-brown colour.

His *blood picture* on March 11th, four days before admission, showed: erythrocytes, 2,600,000; leucocytes, 8900; hæmoglobin, 58 per cent.; colour-index, 1·1; halometer reading, 6·2μ; reticulocytes, 2 per cent.; fragility range, 0·55–0·45; van den Bergh indirect positive.

Here again in an effort to stave off the apparently inevitable crisis, intravenous hepatex was administered but without effect. He was transfused two days after admission, receiving 15 oz. of citrated blood, with an immediate improvement in his clinical condition. Stained films showed the usual dark-staining microcytes, many megalocytes, and numerous normoblasts. The progress of the blood picture may be seen from Table IV.

TABLE IV

Van den Bergh: +ve indirect on each date.

Date.	Hb.	R.B.C.	W.B.C.	C.I.	Reticulocytes.	Fragility range.
	(p.c.)	(millions)			(p.c.)	
Mar. 11	58	2,600	8,900	1·1	2	0·55–0·45
,, 16	26	1,480	4,400	0·92	2	0·65–0·55
,, 17		Transfusion 15 oz. of citrated blood.				
,, 28	29	1,400	20,000	1·0	40	0·45–0·35
Apr. 3	28	1,370	5,800	1·07	25	,,
,, 9	30	1,840	7,500	0·83	15	
,, 27	50	3,700	8,000	0·67	10	
June 23	50	3,200	6,500	0·75		

This boy's convalescence was interrupted by an attack of acute tonsillitis on March 28th, which had an obvious slowing effect on his hæmopoiesis.

FAMILY HISTORY

Mother and father enjoy good health but the father (Mr. B.) has always had a "curious" complexion and gave a history of having been admitted to hospital in 1929, following an attack of what may have been biliary colic when it was discovered that he had an enlarged spleen. At that time his blood picture showed: erythrocytes, 5,300,000; leucocytes, 8500; hæmoglobin, 80 per cent.; colour-index, 0·75; but his fragility range had not been investigated.

When he came to hospital in connexion with the admission of the first patient his complexion at once confirmed the provisional diagnosis of hæmolytic family jaundice.

On examination Mr. B. was found to be a slimly built man of 45 with a curious café-au-lait complexion. There was definite icterus of skin and sclerotics. The liver was 2 inches below the costal margin and the spleen was felt as a hard, firm tumour 3 inches below the costal margin,

but there was no tenderness over either organ. There was no evidence of leg ulceration or skeletal changes.

Blood examination (March 10th) showed: erythrocytes, 3,600,000; leucocytes, 11,000; hæmoglobin, 80 per cent.; colour-index, 1·1; halometer reading, 6·2 μ; fragility range, 0·6–0·45 per cent.; van den Bergh—a delayed direct and positive indirect.

He is the youngest of a family of nine—six brothers and two sisters, one brother having died in infancy (cause of death not known)—and states that his father also had what came to be called the "family" complexion. One sister and one brother are known to have enlarged spleens and the former shows an increased range of red cell fragility, but these two enjoy good health as do the other members of the family, and there has been no history of any parallel happenings in their families.

Mrs. B., the mother of the four children described above, is a healthy looking woman of 40, and her blood picture showed: erythrocytes, 3,900,000; leucocytes, 6000; hæmoglobin, 79 per cent.; colour-index, 1; fragility range, 0·45–0·35 per cent.; van den Bergh—both reactions negative. She has never been jaundiced.

COMMENTS

During their stay in hospital, when they had obviously recovered from the acute hæmolytic crisis, the four patients presented many features in common. Their colour varied from day to day—from hour to hour almost—and the same applies to the degree of splenic enlargement. In this connexion it seemed to me that, *after* they had passed the critical stage of the illness, they appeared to be better clinically when their spleens were relatively large, and this, I think, is what one would expect.

There was no evidence clinically or radiologically of the "tower-shaped" skull or other skeletal deformity described by Gänsslen [3] and others, but the palatal arch seemed to be higher than normal in all four. One (A. B.) had a mongoloid cast of feature due to the smallness of the palpebral fissures and the angle at which they were set. Her sister (B. B.) had crowding and malformation of her teeth, which however showed no sign of caries. The blood Wassermann was negative in all four patients. They all passed huge bulky motions, particularly after their transfusions, and these showed the characteristic dark brown colour due to excess of stercobilin.

The girls were dismissed from hospital on May 18th and the boys on June 7th, on the understanding that they were to undergo splenectomy in the near future, to which their parents very bravely agreed.

DISCUSSION

So far as I am aware serial crises in hæmolytic family jaundice have not figured prominently in the literature. Vaughan,[4] in discussing the ætiology of acholuric jaundice, mentions the case of a father and son who fell acutely ill on the same day and were admitted to hospital with a diagnosis of food poisoning or septicæmia. More recently Murray-Lyon [5] reports the case of two brothers whose story is quite parallel to my series except that the question of Lederer's anæmia was raised because of the low reticulocyte count in the elder of his two patients. But that the low reticulocyte count is evidence that hæmopoiesis is failing to keep pace with the rapid blood destruction is well seen in Table IV. of this series when the patient was admitted before the actual crisis occurred. As soon as the patient has been tided over the crisis, there is a marked rise in the reticulocytes. In each of the four cases described above the initial reticulocyte count was low and only rose when the crisis was over.

The release of what Vaughan [4] aptly calls "the trigger mechanism" appears to be the most interesting feature of these crises. From the clinical description of these four cases it will at once be appreciated that no adequate cause, such as common infection, was discoverable. The parents were firmly of opinion that emotion played a large part in Cases II., III., and IV., and Piney [6] states that "the onset of such crises is often preceded by psychic disturbances, such as rage." But if we accept this "sympathetic" view of the onset in Cases II., III., and IV., we are still left with the difficulty of accounting satisfactorily for the onset in Case I.

I am glad to be able to record that all four children have since (September, 1934) been successfully operated on by Mr. Alexander McLennan in the Royal Hospital for Sick Children, Glasgow, and the effects of splenectomy on their blood pictures have been fully investigated by Dr. W. T. W. Paxton, whose results will be published in due course.

It gives me great pleasure to express my thanks to Dr. Douglas W. Russell, for permission to publish these case records. I am indebted to Dr. Archibald P. Robertson, our then house physician, for his painstaking work in connexion with the blood examinations.

REFERENCES

1. Minkowski, O.: Verhandl. d. Kongr. d. inn. Med., Wiesbaden, 1900, p. 316.
2. Dawson of Penn, Lord: Brit. Med. Jour., 1931, i., 921, 963.
3. Gänsslen, M.: Klin. Woch., 1927, vi., 929.
4. Vaughan, Janet M.: The Anæmias, London, 1934, p. 201.
5. Murray-Lyon, R. M.: Brit. Med. Jour., 1935, i., 50.
6. Piney, A.: Recent Advances in Hæmatology, London, 1931, p. 298.

HODGKIN'S DISEASE IN NATIVES OF NIGERIA

RESULTS OF THE BIOLOGICAL TEST

By E. C. Smith, M.D. Dub.

SENIOR PATHOLOGIST, MEDICAL RESEARCH INSTITUTE, LAGOS

The biological test for lymphadenoma, as described by Gordon,[1] is a valuable addition to the clinical and histological methods of diagnosis of this malady. The average Nigerian dislikes long periods in hospital and unless dramatic results ensue from treatment he is prone to return to his farm, usually far distant, and the native "doctor." It is often, therefore, impossible to keep such people under observation for long periods and clinical histories are either unreliable or are too meagre to be of any real value. The removal of a gland for examination is usually possible and is now done as a routine in suspected cases, and the diagnosis is based upon the histological findings combined with the results of the biological test in rabbits. Material from out-stations can be forwarded in phenolised broth (0·5 per cent.), as it has been shown by Gordon that the sensibility of the test is in no way impaired by the presence of phenol in this dilution.

The present paper is an attempt to summarise the findings from material from nine cases of lymphadenoma in Africans.

Diphtheroid bacilli have been implicated in the ætiology of Hodgkin's disease by Bunting and Yates [2] (1913) and in four of the cases under review an investigation was made for these organisms. In three instances the glands were received in formalin so that histological examination only was possible.

Age and sex.—No history was obtained with three of the tissues examined. Five of the patients were males, two being boys aged 10 and 14, and two adults, aged 25 and 35. The remaining one was an adult female.

Site.—Generalised enlargement was noted in three of the cases. Cervical enlargement only in one, cervical and axillary only in a second, inguinal and deep abdominal in a third.

Duration.—So far as could be ascertained from the scanty information available, the duration varied from six months in the abdominal and cervical cases, to three years in the one with cervico-axillary involvement.

FIG. 1.—Hodgkin's disease in an adult female. Asymmetrical cervical enlargement.

Blood examination.—In five of the cases in which an examination of the blood was made, the presence of a secondary anæmia was established. There were no abnormal cells seen in the smears. Malaria parasites (subtertian form) were present in one of the smears.

TREATMENT OF THE MATERIAL

Whenever possible, the material was collected during the operation in a sterile vessel containing a little nutrient broth. If several glands had been removed, one was immediately placed in Bouin solution for histological purposes. If only one gland was available, a portion was excised with sterile scissors and placed in the fixing solution; the remaining glands, or portion of a gland, were retained for bacteriological investigation. In the last three cases to be examined, material was preserved for the biological test also.

The bacteriological examination had a two-fold object, first, to exclude the possibility of infection with tubercle bacilli, and second, to show whether organisms of the diphtheroid group were present. To accomplish this a portion of the gland was ground up in a Griffith's tube with a few drops of nutrient broth, and when it was sufficiently emulsified, 0·5 c.cm. was drawn up into a syringe of a suitable size and inoculated into the mammary region of a female guinea-pig. Three animals were used for a test.

A further portion of gland tissue was ground up in a similar manner and the emulsion so obtained was inoculated direct, by means of a platinum loop, into flasks of 50 c.cm.

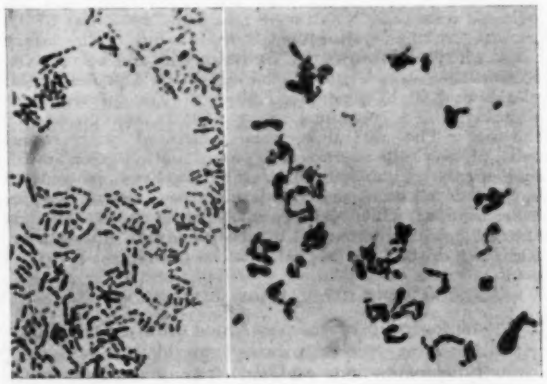


FIG. 2.—Left: a strain of diphtheroid organism isolated from patient (Fig. 1). Right: a ten-day culture of the same organism showing involution forms.

capacity containing serum- (sheep) agar. Anaerobic plates were then poured after the method described by Krumwiede and Pratt. Loopfuls of the emulsion were further stroked on to blood-agar and serum-agar slopes. This part of the technique was omitted in two of the cases investigated as it was found that these aerobic cultures always became overgrown with organisms of the spreading type. In addition, a portion of the gland from each of the three last cases was ground up in a sterile mortar, a weighed amount (1·0 gramme) was diluted with nutrient broth in the proportion of one to five and was then stored at freezing temperature for five days. After this the emulsion was allowed to remain at 27° C. for one hour and was then further diluted with nutrient broth to 1 in 20 and

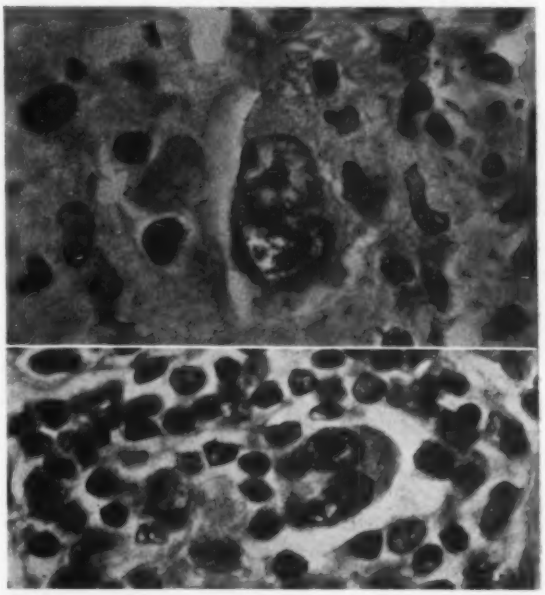


FIG. 3.—Photomicrographs of section of a gland from patient (Fig. 1) showing types of giant-cell encountered.

inoculated into rabbits in the manner described by Gordon. Two to four rabbits were used for each test. In one of these three cases, that in which there was enlargement of the inguinal and deep abdominal glands, some of the ground-up gland material, after drying in vacuo over calcium chloride, was transferred to a sealed tube and kept at 27–29° C. in the dark for one month.

HISTOLOGICAL EXAMINATION

Paraffin sections were prepared and stained by hæmatoxylin-eosin and by the Giemsa method. The accompanying photomicrographs illustrate the type of lesion found. All the characteristic features of lymphadenoma—i.e., the distortion of the normal glandular tissue, fibrosis, the presence of cells of an unusual form such as the Hodgkin type of giant cell, and infiltration with eosinophil cells—were present in varying degrees. Too much importance must not be attached to excessive infiltration with eosinophil cells when dealing with tissues from natives, since the coexistence of a filarial infection or of intestinal parasites is of frequent occurrence, and here a differential blood count is of value. Fibrosis was present to an extreme degree in an axillary node from a case (No. 258/33) of generalised enlargement of the lymph glands. The fibrous tissue had proliferated so much that it replaced almost the entire substance of the gland. Here and there remained small groups of round cells with scanty multinucleate forms and a very occasional eosinophil. Dr. Gordon regarded this section as being very suggestive of "Hodgkin in the fibrotic stage." The results of the biological test, described later, are of particular interest. Unfortunately it was not possible to follow up this case clinically. It is worth noting that, in macroscopic section, the glands in the earlier stages

of the disease presented a typically homogeneous, faintly lobulated surface of a deep yellow colour, as contrasted with the dense white appearance exhibited by glands affected with a true neoplastic growth.

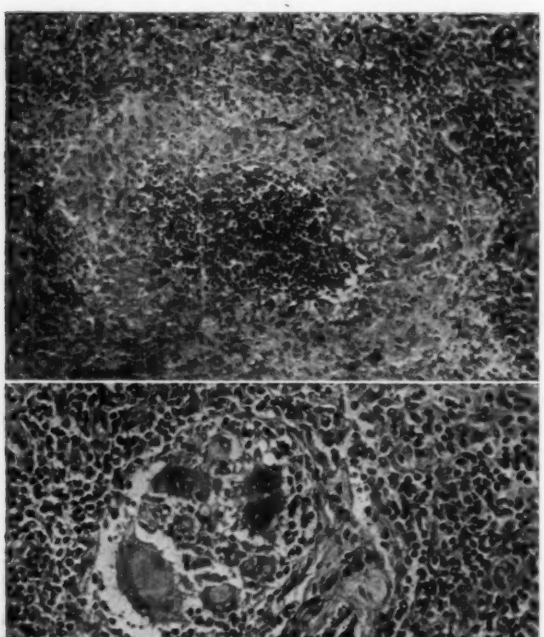


FIG. 4.—Photomicrographs showing types of lesion seen in sections. Above: area of necrosis with polymorph cell infiltration. Below: fibrotic area with well-marked giant-cells of the "foreign body" type.

BACTERIOLOGICAL EXAMINATION

The inoculated guinea-pigs were examined at weekly intervals up to three months. Local induration and slight swelling of the region occurred in all of the animals within the first month. The swelling and induration gradually subsided and when the animals were examined post mortem no evidence of tuberculous or other infection was found.

Anaerobic plate cultures.—After two days' incubation at 37° C. the cultures were examined with a binocular microscope and by transmitted light. Three types of colony could usually be distinguished.

(*a*) Large dense lens-shaped colonies (composed of Gram-positive cocci, presumably staphylococci).

(*b*) Pale translucent irregular or polyhedral-shaped colonies (composed of Gram-negative motile bacilli).

(*c*) Minute lens-shaped or rounded colonies, composed of Gram-positive bacilli showing well-marked beading when stained by Giemsa and resembling in general the text illustration given in Ford[3] of *Corynebacterium hodgkini* (Bunting and Yates).

Colonies of this third type were fished from the plates and were subcultured upon serum-agar and upon blood-agar slopes, the latter containing potassium tellurite. Minute colonies were observed within 48 hours, those on the media containing potassium tellurite being of an intense black colour. Further subcultures, made upon serum-agar, yielded more rapid growths; colonies, visible to the naked eye, being obtained within 12 hours. In four-day and ten-day cultures, maintained upon the same medium, the organism showed well-marked pleomorphism, beading, and involution forms.

EXPERIMENTAL INOCULATION OF THE ORGANISM INTO ANIMALS

Cultures of a strain of the diphtheroid organism, obtained in the manner outlined above, were used for experimental inoculation into guinea-pigs, rabbits, and monkeys (*Macacus rhesus*).

Guinea-pigs.—Six animals were inoculated subcutaneously, the inoculum consisting in each instance of an actively growing 48-hour serum-agar culture washed off with approximately 1 c.cm. of nutrient broth. No pathogenic action was observed.

Rabbits.—Four animals were used. Two received subcutaneous inoculations, the inoculum being the same as for the guinea-pigs, and two received intravenous inoculations, each inoculum consisting of 0·5 c.cm. of a broth "washing." No pathogenic effects were observed up to a period of six months.

Monkeys.—Four *M. rhesus* were employed. Two received bi-weekly injections into the subcutaneous tissues of one axilla over a period of eight weeks. Two received weekly intravenous injections for a period of six weeks. The inoculum in each instance consisted of a broth "washing." The animals which received the axillary inoculations exhibited palpable glands in both axillæ at the end of three weeks. No change was observed in the animals which had received the intravenous inoculations. A specimen of blood-serum was obtained from one of the monkeys at the end of six weeks and it was found to possess an agglutinating titre of 1/1440 for the strain of diphtheroid bacilli used for the intravenous inoculations. No agglutination was obtained with other strains of diphtheroid bacilli isolated from lymphadenomatous material. Living suspensions were employed in these agglutination tests.

One of the animals which had received axillary inoculations was killed and examined post mortem at the end of ten weeks. Symmetrical enlargement of the axillary nodes was found, the glands were soft and varied in size from a pea to a hazel-nut. They were embedded in vascular granulation tissue and showed no tendency to become adherent or to suppurate. Beyond slight enlargement of the spleen there was no other finding of note. Smears were made from the freshly cut surface of several of the enlarged glands and small fragments were inoculated upon serum-agar and blood-agar slopes. No organisms were seen in the smears when suitably stained and the cultures were negative after 48 hours' incubation at 37° C. Paraffin sections were prepared from a few of the larger nodes and were stained by hæmatoxylin and eosin. On section there was some thickening of the capsules of the glands and slight generalised fibrosis. The follicles were prominent and contained many cells in the process of mitosis. The reticulum was infiltrated with round cells, plasma cells in clusters (Pyronin methyl-green stain), and scanty polymorph cells. The condition in general suggested a non-specific inflammatory reaction. The other animal which had received axillary inoculations showed gradual regression of the glandular enlargement and six months later appeared to be normal.

METHOD AND RESULTS OF BIOLOGICAL TEST

The biological test was performed on three occasions with tissues received from cases thought to be suffering from lymphadenoma and on four occasions with material not originating from cases of Hodgkin's disease. A brief note on these "controls" may not be out of place.

In the first the material consisted of portion of a gland which had been removed from a young male native suffering from generalised glandular enlargement and swelling of the testis. The histological appearance suggested spindle-celled sarcoma, but the tissue was degenerate and difficult to stain. A biological test was made using two rabbits and the result was negative.

A portion of the testicular growth was obtained later and a part of this tissue was also used for a biological test, again with negative results. The histological appearances, however, left no doubt as to the true nature of the condition—i.e., sarcoma.

The third "control" consisted of tissue from multiple nodular growths of the skin. The histological structure was typical of the type of sarcoma known as Kaposi tumour. The biological test was negative.

The fourth control from a case at autopsy consisted of enlarged abdominal glands. Histological study of the spleen revealed an advanced form of sickle-cell anæmia. The biological test (three rabbits employed) was negative.

In two of the tests with material from suspected cases of lymphadenoma, typical results were obtained, the rabbits coming down with well-marked paralytic symptoms from the fourth to the seventh day following intravenous and intracranial inoculation of the material. Before the development of the typical paralysis with positive Romberg sign, a loss in weight, averaging 220 g., always occurred. It was also observed in positive cases that an animal placed on the floor in the usual sitting position, and suddenly turned completely round, always showed signs of loss of balance, being unable to regain control of its movements for 30 seconds or longer. The test, apart from its easy application, was found to constitute a reliable early indication of the progress of the condition. Material from one of the positive cases was, as already stated, kept in a sealed tube in the dried state for one month. It was then divided into two portions, one being sent to England where its potency for rabbits was confirmed by Dr. Gordon. The second portion was redissolved in a few c.cm. of nutrient broth and was then inoculated into four rabbits and two monkeys (*Macacus rhesus*). Two of the rabbits received intracranial inoculations only. All four rabbits developed typical paralysis on the fifth or sixth day after inoculation. The monkeys showed no evidence of having been inoculated.

The histological findings in these two cases fully confirmed the results of the tests in rabbits. It is interesting to note that, in one of the cases, sections prepared from the gland received were not typical of Hodgkin's disease. When the biological test gave a positive result with the remainder of this gland, a further specimen was obtained from the case. This second gland was considerably larger than its predecessor and presumably the condition was in a more advanced state since the histological appearances were now characteristic of lymphadenoma.

The third case (258/33) must be regarded as doubtful, both from the histological findings, already noted, and from the results of the biological test.

The gland from this case was received in 0·5 per cent. phenol broth, having taken eight days to arrive from an out-station. Cultures were made from it on arrival on serum-agar and in nutrient broth and were found to be sterile after 48 hours' incubation at 37° C. The gland was ground up in the usual way, emulsified in nutrient broth in a dilution of 1 in 5, and after storing for 24 hours at freezing temperature the suspension was inoculated intracerebrally and intravenously into two rabbits. These remained apparently normal with no loss in weight for a period of 40 days from the date of the inoculations. They then showed a loss in weight of 210 g. and 250 g. respectively, they exhibited a swinging temperature varying from 100° to 104° F. over a period of four days, and at the same time they developed a typical spastic paralysis with an extremely well-marked Romberg sign. The animals took no food, were obviously in a cachectic condition, and were eventually chloroformed. At autopsy no gross lesion was found, cultures from the spleen and heart's blood were negative, and sections of the brain revealed no histological lesion beyond well-marked congestion. A passage of brain material was then made into two rabbits and 12 white mice with negative results.

Though the results suggest an unusual form of delayed reaction the possibility of a spontaneous outbreak of some form of virus infection must be considered. Against this hypothesis, however, is the fact that the remaining stock of rabbits did not show any evidence of a generalised infection at the time.

SUMMARY

Eight certain and one doubtful case of lymphadenoma are reported from Lagos, Nigeria. In six of these the diagnosis was based upon histological findings alone, whilst in three the biological test was carried out in addition. The test was definitely positive in two of the cases. The third case was not typical histologically and must be regarded as doubtful. Tissues from non-lymphadenomatous conditions were used as controls for the biological test in four instances, the results being negative. Material from four of the cases under review was investigated for the presence of diphtheroid bacilli and the organism was isolated in all. Cultures of one strain of the organism were used for animal inoculations with negative results.

I am indebted to Dr. W. B. Johnson, director of medical services for Nigeria, for permission to publish; to Dr. M. H. Gordon, of St. Bartholomew's Hospital, London, for his kindness in personally demonstrating the technique of his test; to Prof. E. H. Kettle for his opinion on the sections from the cases reviewed; to the director of the Rockefeller Yellow Fever Commission for the use of the *M. rhesus* monkeys; and finally, to those medical officers who kindly sent material for examination.

REFERENCES

1. Gordon, M. H.: The Rose Research on Lymphadenoma, 1932, Bristol and London.
2. Bunting, C. H., and Yates, J. L.: Jour. Amer. Med. Assoc., 1913, lxi., 1803.
3. Ford, W. W.: Text-book of Bacteriology, Philadelphia and London, 1927, p. 279.

A CASE OF
CONGENITAL DEFECT OF THE STERNUM

By A. Jordan, D.Sc. Strasbourg

A Syrian tobacco-planter, aged 60, fell downstairs and broke his right humerus. He was admitted to St. Bartholomew's Hospital under the care of the surgical professorial unit on Sept. 5th, 1934, when it was discovered that he had no sternum. He was a short, very fat man. All his life he had been aware that the skin on the front of his chest advanced and receded during respiration. This abnormality was not the result of accident. He did not know of any similar defect or other congenital anomaly in his family.

THE THORAX AND RESPIRATORY MOVEMENTS

During inspiration the skin over the sternum receded to such an extent as to cause a marked depression; during expiration it became slightly raised. The two sterno-clavicular joints could be palpated but between them no bone was felt. On each side the clavicle joined a bar of bone which descended as the well-defined lateral boundary of the deficiency, being joined by the costal cartilages of that side. The defect was continuous with the front of the neck above. Below the fourth costal cartilages it was not possible to determine the presence or absence of bone in the midline. The

deficiency measured about two inches transversely. Percussion and auscultation of the lungs, together with the increased antero-posterior diameter of the chest, showed emphysema to be present.

The apex-beat of the heart was felt with difficulty in the fifth intercostal space, four and a half inches from the midline. The area of cardiac dullness could not be defined, and the heart sounds were faint but normal.

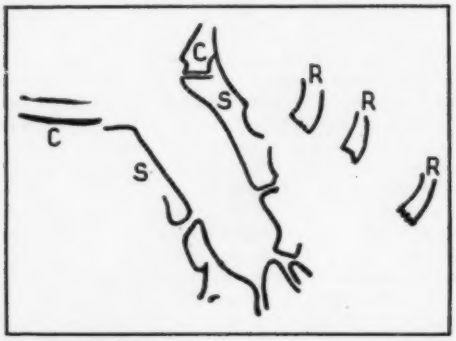


FIG. 1.—Diagram of the chest wall as it appears in an oblique X ray. U-shaped sternum. Clavicles (C) join each limb (S) of the U. On the right three ribs (R) end at the costo-chondral junctions.

The systolic blood pressure was 150 mm. Hg, diastolic 100 mm. Routine examination revealed nothing other than the fracture and the sternal defect.

X ray examination showed his bones to be slight for a man of his build but otherwise normal. The sternum (Fig. 1) consisted of a series of bones arranged in the shape of the letter U. Each limb of the U was joined at the top by the clavicle and consisted of two pieces, a long upper and a short lower. The bend of the U consisted of two pieces of triangular shape. From the X ray film it was seen that the lateral limbs of the U were joined by costal cartilages at the middle of the lateral border of the upper segment and at the junction of the upper and lower segments.

The increase in volume of the thoracic cavity during inspiration causes a negative pressure of the air in the lungs and leads to recession inwards of any unsupported part of the thoracic wall. During expiration the pressure in the lungs rises and any unsupported portion of the chest wall bulges outwards. This explains the apparent paradoxical behaviour of the soft tissues of the anterior mediastinal wall from which support of the sternum is absent. In so far as this wall was not rigid the negative pressure in the mediastinum in this case must have been smaller than usual. Wyatt [1] reported a case in which circulatory failure was present along with a congenital defect of the sternum. He does not seem to have associated the two things but the impaired negative pressure in the mediastinum may have added to the patient's difficulties. There was nothing in the history or examination of our patient to suggest any hindrance to the venous return to the heart.

It would be of interest to know whether the two cases of sternal defect cited had any deficiency of the fibrous pericardium. Grant [2] concluded that its absence causes no circulatory disturbance.

DEVELOPMENTAL ANATOMY

According to Ruge [3] the ventral body wall comes into being by the approximation of two growing margins, which, starting on the right and left aspects of the axial structures of the embryo, grow into the lateral mass of mesoderm, carrying the muscle plates, nerves, and the embryonic basis of the dermis and cartilaginous and osseous structures.

The ribs appear very early in these growing margins and the growing ventral extremities of the ribs later become united by embryonic connective tissue; the upper ribs become united first and then the lower ribs, thus forming bilateral widely separated bars which are the first indications of the sternum. The two sternal bars grow nearer to each other, finally fusing (see Fig. 2). Fusion begins proximally while the distal ends are still separate. As the fusion of the sternal bars takes place, their transformation into cartilage proceeds, a cartilaginous sternum resulting. After fusion ossification begins.

CONSIDERATION OF THE DEFECT

The essential defect in our patient lay in a failure of fusion of the mesenchymatous sternal bars. The ribs with the sternal bars grow round the enlarging heart and liver, and for fusion to occur the ribs must grow more quickly than the heart and liver. The defect is one of a series which range from slight deficiencies of the anterior thoracic wall, such as absence of muscles, to grave conditions such as ectopia cordis, in which the heart protrudes from the thorax, the skin is deficient, the pericardium completely absent, and the sternum badly developed or lacking.

Defective development of the body wall is better known below the level of the umbilicus. Ectopia vesicæ may be compared with ectopia cordis. In the former condition the anterior abdominal wall below the umbilicus is formed by the posterior wall of the bladder, the ureters open on to this surface, and epispadias is present. Both show a failure of

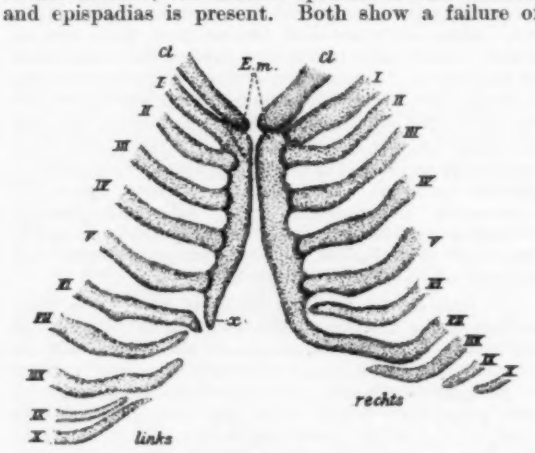


FIG. 2.—(Taken from Ruge). Developing sternum of a 30 mm. embryo. Numerals indicate ribs. E.m.=portion derived from shoulder-girdle. Cl.=clavicle. More ribs participate on the right (rechts) than on the left (links).

the embryonic constituents of the body wall to reach the midline. In the one the sternum and in the other the hip-girdle is defective, while both show skin deficiency. The possible defects in these regions may be set out thus:

Supra-umbilical.	*Infra-umbilical.*
Ectopia cordis.	Ectopia vesicæ.
Defect of sternum.	Defect of symphysis pubis.
Defect of pectoralis major.	Divarication of recti.
Absence of fibrous pericardium.	Epispadias.
Integumentary scars.	Integumentary scars.

These defects are to be looked on as resulting from a deficiency in the growth power of the particular tissue. They are not associated with general physical or mental deficiency.

My thanks are due to Prof. G. E. Gask for permission to record this case, and to Prof. H. H. Woollard for advice and assistance.

REFERENCES

1. Wyatt, H. G.: Brit. Med. Jour., 1932, i., 14.
2. Grant, R. T.: Heart, 1926, xiii., 371.
3. Ruge, G.: Morpholog. Jahrb. (Gegenbaur), 1880, vi., 363.

INTERNAL PNEUMOLYSIS

RESULTS OF 110 CONSECUTIVE OPERATIONS

By F. G. CHANDLER, M.D. Camb., F.R.C.P. Lond.

PHYSICIAN, WITH CHARGE OF OUT-PATIENTS, ST. BARTHOLOMEW'S HOSPITAL; PHYSICIAN, CITY OF LONDON HOSPITAL, VICTORIA PARK

(WITH COLOURED PLATE)

ENDOSCOPIC division of pleuro-pulmonary adhesions or internal pneumolysis would be used more frequently if physicians were convinced that the operation could be performed with safety, that the results were good, that the operation was no ordeal to the patient, that severe reactions need not occur, and if it were realised that frequently it is only by thoracoscopy, and by this alone, that it can be determined whether adhesions are severable or not, and that thoracoscopy per se is without risk.

As regards the safety of thoracoscopy per se without further operative procedure, it may be said at once that with over 250 thoracoscopies I have only once known anything approaching a severe reaction, and that was a transient rise of temperature to 103° F. and a small pleural effusion. In one other case, thoracoscoped in 1931, a sinus appeared, but not for many months afterwards, and the patient had had an attack of so-called influenza, after which a swelling appeared at the site of the thoracoscopy puncture. Evidently a spontaneous pneumothorax and pyothorax had occurred, which was entirely independent of the thoracoscopy. As the pus pointed at the site of the old thoracoscopy wound, one cannot entirely exonerate this from being the cause of the sinus. This possibility must, of course, always be remembered, but this applies equally to any puncture of the chest. It is of interest to quote the note made at the time in this particular case:—

Miss A., aged 30. Adhesions seen in position expected; covered with thick lymph and fibrin, and studded with tubercles. There was only a limited pleural space. The pleura everywhere was covered with thick white and yellow fibrinous lymph; many tubercles could be seen on the visceral pleura as well as on the adhesions. The lung is evidently adherent behind and towards the base. I thought that no useful purpose would be served by severing the adhesions; and as tubercles were present, and might cause an acute tuberculous empyema, nothing was done.

The following analysis of cases will afford a proof that the operation is without undue risk, that the results are highly gratifying, and that severe reactions are uncommon. Success, however, entails a rigid technique, infinite patience, and meticulous care. With these precautions there should be no pain from beginning to end other than the pricks of the small hypodermic and pleural needle for the local anæsthetic. The good colour and comfortable condition of the patient, during and after an operation which may take as long as an hour and three-quarters, is remarkable. Only once have I known the patient become faint on the table. This may depend partly on technique, but it may partly be the result of the warmth applied by the lamp to the interior of the chest. I do not use any drug except with highly nervous patients or with operations taking a long time, when two tablets of Allonal are given.

Material

The conclusions reached in this article are based on 110 consecutive operations, during the years 1929–1934 (not including cases of bronchiectasis), performed on 89 patients. In practically every case the disease was extensive, often with gross cavity formation. Detailed notes have been made of the operations and the reactions and, whenever possible, the patient's condition has been ascertained at three-monthly intervals afterwards.

The instruments used are those I have previously described.[1] Cutting by the endothermy wire was abandoned after operation 50 because of certain technical objections (which it is not within the province of this article to describe), and subsequent operations have practically all been performed by a single instrument combining diathermy coagulation current and electro-cautery at a dull red glow. In the majority of cases my one-cannula method has been used. When two cannulas have been employed, Maurer's technique has been followed, with the exception that the adhesion is, as a rule, cut close to the parietal pleura, and not actually enucleated, except on those occasions where it would be dangerous to do otherwise (see Figs. II., III., IV., XII., and XIII. on Plate). I should like to repeat that the cases are not selected, that the operation was sometimes done as a forlorn hope or by urgent request, and that sometimes the disease was bilateral.

I have tabulated a full schedule of details relating to each patient; in the following analysis an attempt has been made to bring out the most important points.

Analysis

Of the 89 patients the youngest was 7 years of age, the oldest 54. Their present condition may be stated thus:

In good health	47	Ill	3
In fair health	11	Dead	15
Not robust, or have had a relapse	6	Untraced	7

Type of Adhesions.—The adhesions have varied from a single cord or narrow band to a maze of complicated adhesions, or broad, thick bands, from one-half to four inches broad, and up to one-half or three-quarters of an inch or more in thickness. The operation has taken from 15 to 105 minutes, average time about 40 minutes. The Table shows the number of times the various types were met with and the method employed.

—	Times met with.	Method used.	
		One cannula.	Two cannula.
Single cord or band	23	15	8
Two to three adhesions	32	25	7
Four to six adhesions	46	32	14
More than six adhesions	9	3	6
—	—	75	35

In the one-cannula method the electro-cautery was used alone 13 times, diathermy alone 33 times, both 30 times; in the two-cannula method the figures were respectively 15, 2, 17.

Mechanical results may be grouped thus:

Complete collapse	49
Greatly improved collapse	17
Closure of cavity without complete collapse	10
Unsatisfactory collapse	13

Pleural Effusion.—Fluid occurred in quantity or in such amount or quality as to interfere with the pneumothorax treatment or to cause obliterative

[1] THE LANCET, 1930, i., 232, and 1934, ii., 357. See also Tubercle, 1932, xiv., 49.

pleurisy 24 times. Of these, 20 are well to-day. It does not appear, therefore, that this is a serious complication. In fact, it may be of great advantage by serving as a collapsing medium, as the example related in Fig. I. shows. This patient is in excellent health to-day with no symptoms and no bacilli.

As it has been suggested that diathermy (D.) is more apt to produce an effusion than the electrocautery (E.C.) the following figures are given:—

Type of current.	Times employed.	Fluid appeared.
E.C. alone	28	4 (14%)
D. alone	35	8 (23%)
D. and E.C. combined ..	47	12 (25%)

The differences in these figures are probably of little or no significance, as I have used the electrocautery alone only for the easier and non-vascular adhesions.

Surgical emphysema occurred 42 times: slight 31, moderate 6, much 5.

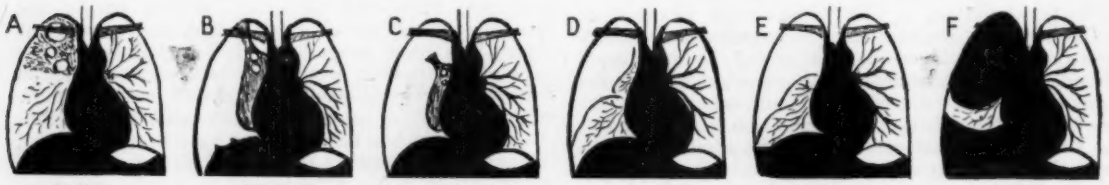
Temperature Reaction.—Often there is no reaction at all. Frequently a slight fever occurs, 99° to 99·5° F., usually 24 hours after the operation and lasting for one day. Occasionally the temperature may rise to as high as 103° and become normal in three days. More prolonged febrile reactions have been experienced 15 times, including the empyema cases; in most instances the temperature was normal again in 5 or 6 days' time.

EMPYEMA

Empyema has occurred 7 times.

Tuberculous	3 cases.
Mixed	3 ,,
Staphylococcus albus	1 case.

The tuberculous empyemas were probably due to irritation of tubercles on the pleural surfaces. In one case a large caseating tubercle could be seen near the lung end of a wide adhesion, and I thought at the time it might cause trouble.



13.ii.30. 22.vii.30. 19.ix.30. 23.vi.31. 27.ix.31. 11.i.35.

FIG. I.—Serial radiograms of female, aged 16. (A) Extensive disease with gross cavitation. (B) Incomplete and inadequate pneumothorax. (C) Adhesions cut. (D) Obliterative pleurisy commencing. (E) Fluid appearing. (F) This gradually increased in amount and was pushed up towards the apex, where it has remained unabsorbed.

Of the 3 patients with this complication, one is alive and well; another alive and free from tubercle bacilli, but with a sinus; the third (the patient with the large visible tubercle), after developing an acute tuberculous empyema with high temperature, which was left severely alone and not touched except for the initial exploratory puncture, regained her health in a marvellous way and was free from all symptoms and remained well till after the birth of a child 4½ years afterwards, when she declined and died.

The three mixed empyemas were due to spontaneous pneumothorax occurring respectively four weeks, three days, and three months after the operation. All were hopeless bilateral cases from the start, and adhesion cutting was resorted to as a forlorn hope. In one case post-mortem examination revealed two perforations in the lower lobe, far from the site of the operation. Of these three patients, two are dead and one is dying.

The staphylococcus empyema came on fourteen

LEGENDS TO COLOURED ILLUSTRATIONS ON PLATE

FIG. II. shows an apical adhesion not far from the subclavian artery. It is a fairly wide band, fleshy and obviously containing lung tissue undesirably close to the chest wall. This being the case, the left-hand edge of the adhesion was nicked in order, it was hoped, to allow the adhesion to stretch.

FIG. III. shows the appearance at the second operation, when the adhesion was divided or enucleated on the chest wall. (Fig. IV.)

FIG. V. shows the scar perfectly white and bloodless.

FIGS. VI.–VIII. show what remained to be done after the second operation on Mrs. D. VI. and VII. illustrate two bands. The lower was membranous, attached to the mediastinum, with no free border mesially. It was left untouched. The upper, more fully illustrated in VII., was divided without difficulty near its insertion. VIII. shows what was left of a very large thick vascular adhesion. It had been half severed at the previous operation and the electrode had been pushed into the substance of the adhesion at its attachment to the parietal pleura at different points, and coagulated with diathermy, with the result that the adhesion could be severed with surprisingly little difficulty and no bleeding. The blood seen on the adhesion trickled down from one of the pricks of the local anæsthetic needle in the parietal pleura, just outside the insertion of the adhesion.

FIG. IX. shows the retracted lung end of the divided adhesion.

FIG. X.—A folded adhesion with an irregular insertion. Great care must be taken to ensure that it has a free edge posteriorly. The Maurer's hook should be put behind and if the adhesion is too large to permit of this, it should be partly cut near the parietal pleura, and then further investigated. As it is impossible to know whether it contains lung tissue or not it must be divided piecemeal and continually re-examined.

FIG. XI.—It is better to cut the small adhesion first, lest it should tear out after the large adhesion has been severed.

FIG. XII.—A wide band adhesion, easily severable and without danger until the right-hand edge is approached, when lung tissue obviously runs up close to the parietal pleura. At this point the adhesion must be enucleated from the chest wall.

FIG. XIII.—A band adhesion which might contain lung tissue for part of its length. It is obviously fibrous, non-vascular, and easily severable. The smaller adhesion with its cone-shaped lung extension beneath is a much more difficult and dangerous problem. This must be enucleated.

DR. F. G. CHANDLER : INTERNAL PNEUMOLYSIS

DR. CHANDLER :

RADIOGRAMS ILLUSTRATING RETRACTION OF LUNG AFTER SEVERANCE OF ADHESIONS

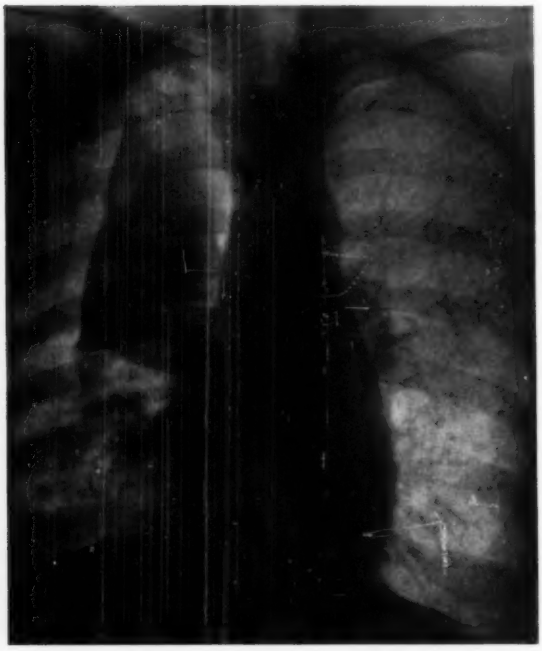


FIG. XIV.

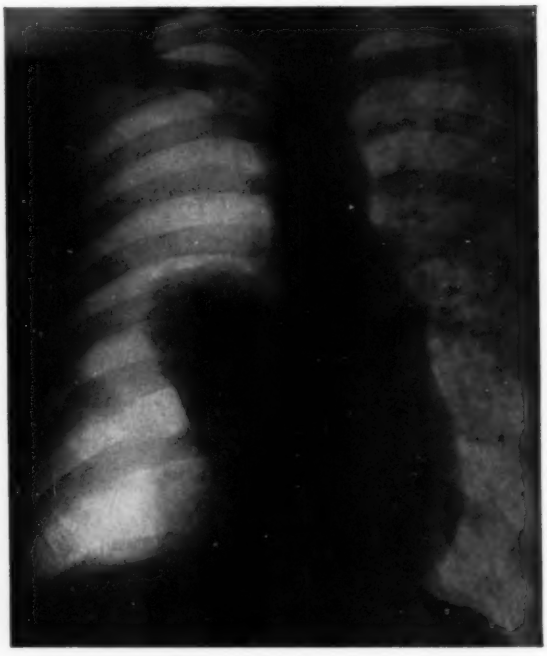


FIG. XV.

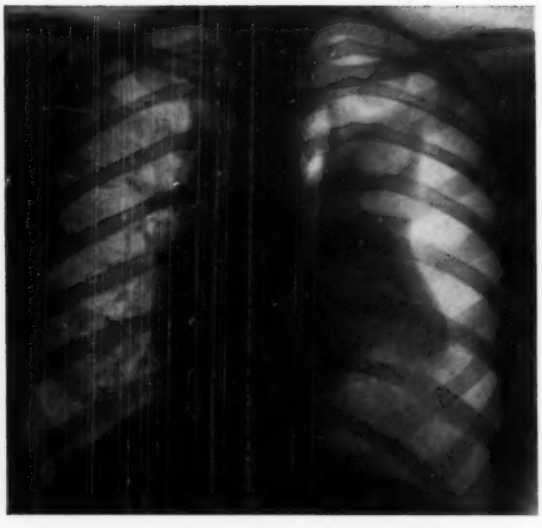


FIG. XVI.

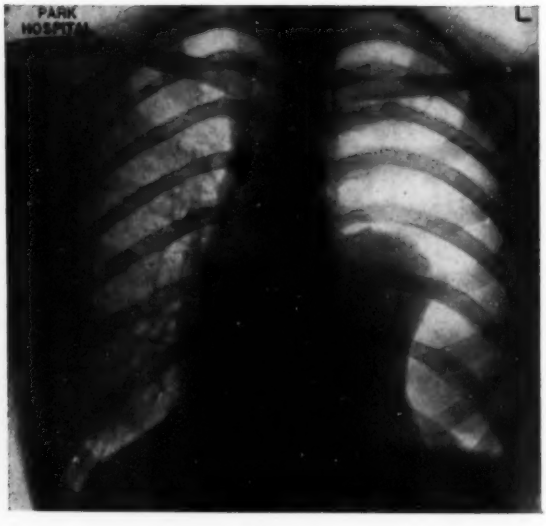


FIG. XVII.

days after operation, when symptoms suggestive of spontaneous pneumothorax occurred. The empyema was drained by a closed method, the lung re-expanded, a thoracoplasty was performed, and the patient is now well.

One patient developed a streptococcal empyema eighteen months after the operation, as a complication of influenza. This was in no way caused by the operation.

It may be asserted, therefore, that in this series an empyema due to the operation has been of rare occurrence. The possibility of the occurence of an empyema at all, however, is very disturbing and constitutes one of the main dangers of the procedure. Though correct and careful technique will doubtless keep the proportion of empyemas low, it is probable that if large complicated adhesions are tackled, it will be impossible to prevent entirely tuberculous empyema and spontaneous pneumothorax.

It is for this reason that judgment must be used and adhesion cutting not be resorted to indiscriminately or as a routine. A patient may look and be well clinically, but the persistence of a cavity or tubercle bacilli, because of adhesions, makes the prognosis so grave that thoracoscopy would be indicated. If however there is an incomplete pneumothorax because of adhesions, but the clinical condition is good, bacilli absent, and no cavity visible, we should surely be conservative in recommending adhesion cutting, even though we may feel unhappy about the ultimate result after the re-expansion of the lung, for we know that there is the possibility of converting a patient, apparently fit, into a very ill and toxic one.

EXPLANATORY TRACINGS OF SKIAGRAMS

(see opposite page)

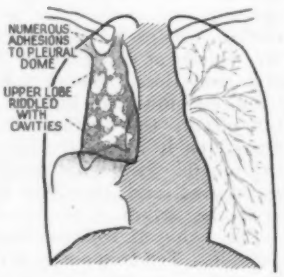


FIG. XIV.—Right upper lobe riddled with cavities held up by numerous adhesions to pleural dome.

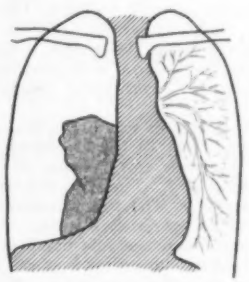


FIG. XV.—Complete freeing after adhesions severed by single instrument, with excellent result clinically.

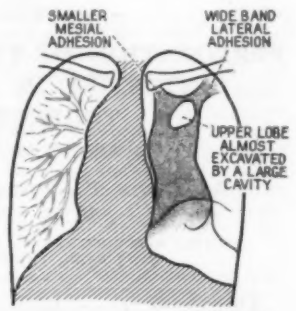


FIG. XVI.—Left upper lobe almost excavated by a large cavity held out by a wide band lateral adhesion and a smaller mesial adhesion.

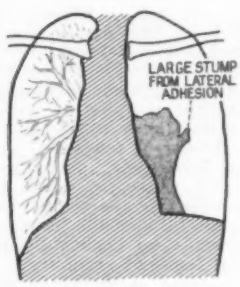


FIG. XVII.—Appearance after complete division of adhesions by the single instrument. The large stump of the lateral adhesion can be seen plainly. Good clinical result.

HÆMORRHAGE

Bleeding, in more than negligible quantities, has occurred fifteen times. Twice there was arterial spurting. The bleeding has always been controlled. Once a slightly blood-stained effusion occurred, but there has been no hæmothorax throughout the series. In every case, without exception, the hæmorrhage has taken place from the parietal pleura or the parietal end of the stump. The greatest possible preventive care has been taken by always coagulating before cutting, using the electro-cautery alone only on non-vascular adhesions, and by, as it were, whittling down the adhesion piecemeal, rather than resorting to bold and spectacular cuts. Bleeding has become progressively more rare throughout the series.

Illustrative Cases

The following four cases may serve to illustrate the possibilities of pneumolysis. All were desperately ill before the intervention.

1. Sylvia, aged 7, in 1930 had acute tuberculosis of the left lung, which rapidly became excavated until a very large cavity was formed in the left lower lobe. Sputum was copious and always contained tubercle bacilli in large numbers. An artificial pneumothorax was induced, but the cavity was unaffected owing to large lateral adhesions. These were divided by the single instrument, when a perfect "collapse" of the lung was obtained. The cavity closed and the child became well. As she dreaded and hated the pneumothorax refills an oleothorax was made. She has remained perfectly well, and to-day, more than five years later, is living the normal life of a schoolgirl.

2. Mrs. B., aged 44. Bilateral tuberculosis of the lungs, slight right, extensive left, with a very large cavity. Left pneumothorax induced September, 1929. Cavity held open by a number of adhesions to left upper lobe. These were severed with considerable difficulty in three separate operations. After the second operation there was considerable surgical emphysema. During the third operation there was much bleeding which was controlled by diathermy; a temperature of 100° F. for three days and some fluid. The fluid increased and had to be aspirated several times. The patient to-day, nearly six years after, is in excellent health, tubercle bacilli have never reappeared. The pneumothorax is still being maintained; fluid is no longer present, but there is a great thickening of the pleura. First two operations single instrument employed, third operation two instruments.

3. Miss C., aged 25. Cough, sputum, hæmoptysis, temp. 100° F., sputum T.B. plus, a very large cavity in the right upper lobe. Artificial pneumothorax was induced in March, 1933, but wide and thick lateral adhesions prevented the closure of the cavity. These were severed by the single instrument in one operation; there was no reaction. The cavity gradually closed and the patient made a complete recovery. The pneumothorax was terminated by December, 1934. The patient is in good health to-day.

The fourth case is related in more detail to serve as a record of operative technique.

4. Mrs. D., aged 24. Tuberculosis, left upper lobe, high fever, flushed cheeks, night sweats and wasting, hæmoptysis, cough and sputum excessive, tubercle bacilli constantly present, almost the whole of the left upper lobe excavated. Artificial pneumothorax induced October, 1934. The upper lobe was held out by a number of adhesions of varying width and thickness. These were severed in three separate operations.

First operation (30.xi.34)

Single instrument, diathermy and electro-cautery. Point of entry second space, just outside the mid-clavicular line.

A band was seen at least three inches wide, the left-hand part from the operator's point of view, thin and membranous but very vascular, with thicker columns; the right-hand part and edge was thick and extended backwards to an unknown and unseeable distance. More mesially and anteriorly a cord appeared. No more could be seen with the direct-vision telescope. With the right-angled telescope another band adhesion, still more anteriorly, thin, translucent, and very vascular, came into view.

The outer half of the wide adhesion was anæsthetised, coagulated by diathermy, and cut by electro-cautery. This revealed an extensive posterior ramification of the adhesion, which was thick and fleshy. The cord adhesion was then cut by electro-cautery without anæsthesia. Much oozing occurred from the parietal stump. This was coagulated by diathermy. Then the left-hand edge of the broad adhesion was tackled, anæsthetised on the pleura, coagulated and cut with electro-cautery. Much oozing occurred, even from the preliminary pricks of the anæsthetising needle. This oozing was finally controlled with the small diathermy knob.

Time taken, nearly 1 hour.

Reaction.—Temp. 99° one evening, i.e., on the second day, otherwise none.

Second operation (28.xii.34)

Two instruments were used, diathermy and electro-cautery. Light, third space, just outside the anterior axillary line. Instrument, fourth space, between the mid-axillary and post-axillary line.

The large adhesion was easily found in this position and kept in view with the right-angled telescope. After cutting for some time, finding it impossible to see round the edge with the right-angled telescope, which kept getting obstructed by a more anteriorly inserted adhesion, a direct-vision telescope was put through the instrument cannula, when the adhesion could be beautifully seen, end on, and was found to be free and severable. The instrument was, therefore, inserted through the other cannula, and working left-handed the whole of the adhesion was severed. This revealed another adhesion further on, partly membranous, with several vascular columns. This was anæsthetised, the two edges were burnt through and part of the centre; the rest of the parietal insertion was coagulated and then left.

Time taken, about 1½ hours.

Reaction.—Temp. 100° next evening, 101° second day, 100·8° third day, 99° the fourth and fifth days, then normal. No other reaction.

Third operation (18.i.35)

The light was put in a lower space, and further out as previously decided, the instrument, posterior to the posterior-axillary line, in the sixth space. The cannula had to be pushed rather hard down on the skin, but it sufficed to deal with all the adhesions. Firstly, the middle fish-tail band insertion was cut. This was membranous and resisted the diathermy current. Then a cord was severed to the right-hand side of the thick band which was left from last time. Then this band was tackled and severed without great difficulty, it having been previously coagulated throughout. For some reason I could not get Maurer's hook behind it. I did not persevere much because it hurt the patient, but it appeared to be perfectly free. The whole adhesion was cut. Attention was then directed to the one that came forward and mesially towards the mediastinum. This looked like a thin translucent membrane, but on lifting up the edge it was found not to be free at all, but lung tissue appeared to go right up to the mediastinum. No attempt, therefore, was made to cut this.

Reaction. Temp. 100·4,° 100·2°, 103·6°, 101·2°, 98°, 99·2°, 98·4° on successive days, then normal; slight fluid. No other reaction.

An excellent lateral collapse of the lung was obtained. The cavity and all symptoms and tubercle bacilli disappeared. The patient is in good health and has gained three stone in weight. Obliterative pleurisy is occurring and an oleothorax may be necessary to prevent the premature expansion of the upper lobe. The third stage of the operative procedure is illustrated in colour (Figs. VI.–IX.).

As it is difficult by verbal description for one worker to convey to another exactly what he is doing inside the chest and what types of adhesion he considers operable, unless they are working together, I submit certain coloured illustrations which were made by Mr. Shiells at the time of the operation. They will give some idea, though a limited one, of the structures encountered, but it should be realised that the picture the operator most desires will often be missed as it is usually impossible for him to know beforehand with what problems he is about to be confronted, and therefore difficult to know when to invite an artist.

The value of collapse therapy, so called, is indisputable. Too frequently it fails because of adhesions. If internal pneumolysis is or can be made safe, not only does it enlarge the scope of pneumothorax treatment, but it becomes the logical procedure whenever there are adhesions that can be divided. Pneumolysis will then be employed more often.

PERFORATION OF THE TUBERCULOUS INTESTINE IN PULMONARY TUBERCULOSIS

A REPORT OF TWO CASES

BY DAVID B. ROSENTHAL, M.D. Melb., M.R.C.P. Lond.

MEDICAL SUPERINTENDENT, GRESSWELL SANATORIUM, MONT PARK, VICTORIA, AUSTRALIA

ABDOMINAL complications in pulmonary tuberculosis are by no means rare, and are often present when the clinical picture points only to intrathoracic infection. Boyd [1] states that "every case of pulmonary tuberculosis which does poorly, but with no increase in the physical signs, should suggest intestinal involvement."

At autopsy, ulceration of the intestine, due to the tubercle bacillus, is frequently found, the figures varying from 30 per cent. to 80 per cent. Kaufmann [2] writes that "secondary intestinal tuberculosis is found in about 90 per cent. of cases of chronic pulmonary tuberculosis." On the other hand, very extensive destruction of lung tissue may be present in chronic pulmonary tuberculosis without intestinal ulceration. Nevertheless, perforation of the tuberculous ulcer is, by virtue of the thickened base of the overlying peritoneum, a pathological rarity. On this, Kaufmann says: "Perforation generally speaking is rare, and occurs only in acute annular ulcers which undergo quick caseation. The opening is circular, sharply cut, and usually small. The perforated loop is usually in the lowest part of the pelvis, if of the ileum, which is most frequently the case."

Muir [4] and Boyd [1] agreed that perforation is relatively uncommon, and differentiate between

complete and incomplete perforations. Allen [5] refers to "a rare example of perforation in the base of tuberculous ulcers in the jejunum," and remarks that perforation probably occurs only in cases of rapid course, with mixed infection.

Tuberculosis of the appendix is probably fairly common in intestinal tuberculosis (Muir) (Kaufmann), but perforation of the tuberculous appendix is rarely recorded. Kaufmann [3] however states that "perforation (of the appendix) is not rare in tuberculosis."

The following cases illustrate unusual termination of advanced pulmonary tuberculosis: (1) complete perforation of tuberculous ulcer of the intestine; and (2) perforation of a tuberculous appendix.

REPORT OF CASES

I. COMPLETE PERFORATION OF A TUBERCULOUS ILEAL ULCER

A man aged 39, a hotel employee, was admitted to Gresswell Sanatorium on August 6th, 1934, suffering from pulmonary tuberculosis. He had suffered from weakness and cough (for two years), "nerves," which caused his abandoning work two months previously; and dyspnœa (for three weeks); he lacked energy and had frequent night sweats. The bowels were regular. He was told he had sugar in his urine. Sputum contained tubercle bacilli five weeks previously. He had lost 1½ st. in past six months.

Examination.—He was emaciated and obviously acutely ill, with dyspnœa on slight exertion. Heart: not enlarged; reduplication of second sound at apex, with systolic aortic murmur. Abdomen: liver edge palpable below right costal margin, otherwise nil abnormal. Central nervous system: normal. Lungs: extensive bilateral infiltration, with excavation of upper part of left lung, where many coarse râles were audible. On August 7th the blood sedimentation index (Cutler) was 28 mm. Urine: acid; specific grav., 1016; no sugar; trace of albumin; microscopically clear. Radiography (August 8th) showed "extensive broncho-pneumonic consolidation, involving practically all areas of both lungs, with cavitation in both apices. Small amount of relatively normal lung tissue at the base of the left lung. Gross distortion of the mediastinal shadow, together with marked 'tenting' of the left half of the diaphragm. Trachea deviated to the left side." On August 9th the sputum contained tubercle bacilli.

Progress.—August 13th: patient complained of diarrhœa, alternating with constipation. Partial response to symptomatic treatment and light diet. Sept. 9th: complaint of vague abdominal discomfort. Oct. 1st: gradually becoming worse, and now very ill; abdomen somewhat distended, but very little pain; motions, one or two daily (not blood-stained); distension partly relieved by enema. Oct. 2nd: abdominal distension not relieved by enema. Oct. 3rd: death.

Over the first two months the temperature ranged from 99° F. in the morning to 102° F. in the evening. On the evening of Oct. 1st, 1934, it rose to 103°, and then fell suddenly.

Autopsy.—Extreme emaciation; great abdominal distension. Right lung: weight 26 ounces; general pleural adhesions, both old and recent pleurisy; generalised broncho-pneumonia, most heavily affecting the middle third of lung, but scattered throughout; a few small cavities in the apices of both upper and lower lobes. Left lung: weight 30 ounces; general pleural adhesions; excavation of upper part of upper lobe, with remainder of the lung heavily sown with broncho-pneumonic patches, and showing multiple cavitation, particularly in the apex of the lower lobe, which was honeycombed. Heart: weight 9 ounces; small, "fibrous" changes in myocardium; valves competent.

Abdomen: peritoneal cavity distended with gas, of "heavy" odour but not offensive; peritoneum showed chronic inflammation, with free fluid, thinly purulent in type; much lymph present in flakes on bowel and other viscera.

Examination of the gastro-intestinal tract showed extensive ulceration of lower part of small intestine, many ulcers being almost completely circumferential, but no obstruction was observed. The base of one ulcer in the upper part of the ileum was perforated, the opening being about the size of a pin's head; the perforated loop was low in the pelvis. The terminal ileum, appendix, cæcum, and large intestine were apparently normal.

Liver: 72 ounces; pale and fatty, with some "nutmeg" changes. Spleen: 7 ounces, slightly mushy. Kidneys: each weighed 6 ounces; some atrophic changes. Intracranial contents not examined.

II. PERFORATION OF THE TUBERCULOUS APPENDIX

A man aged 42, a farmer, was admitted to the sanatorium on June 29th, 1934, suffering from pulmonary tuberculosis. Past history was irrelevant. Symptoms of present illness seemed to date back twelve months; they were loss of strength and energy, troublesome cough with fairly copious sputum (never blood-stained), and dyspnœa even on slight exertion. No pain in chest was noted; night sweats were irregular. Micturition was normal. Bowels had acted freely and frequently for the last 9–12 months, with periods of normality. At present there were thin, watery motions four times a day, but no blood seen. Appetite capricious. Had lost 3 st. in the last year.

Examination.—Very emaciated; cyanosis and dyspnœa at rest; greatly increased by slight exertion involved in chest examination. Heart: not enlarged; sounds faint, but clear. Blood pressure, 120/90. Abdomen: liver dullness one finger-breadth below right costal margin; no free fluid detected; no tumour palpable; no tenderness elicited. Central nervous system: normal. Chest: large, barrel-shaped; very little respiratory movement of chest wall, particularly on right side; breath sounds much diminished over right lung, with generalised bronchial breathing, and patches of tubular breathing in the subapical regions; many moist sounds heard, mainly coarse crepitant râles. Fingers showed clubbing.

The diagnosis made was of advanced fibrocaseous tuberculosis, associated with emphysema.

The urine was acid; sp. g. 1028; no albumin or sugar; urates present.

Blood sedimentation index on July 2nd was 14 mm. Tubercle bacilli were found in sputum on July 3rd.

The radiographic report (July 4th) was as follows: "Right lung is partially collapsed by pneumothorax, with several fine strands of adhesions to chest wall and marked 'pocketing' of adherent pleura in the costophrenic angle. The lung itself shows widespread infiltration, with generalised fibrosis and emphysema in the uncollapsed portion. The left lung shows widespread infiltration with fibrosis throughout, with some emphysema at the base. Trachea and upper part of the mediastinum are deviated markedly to the left." Close cross-examination of the patient did not yield any information which suggested the time of occurrence of the spontaneous pneumothorax. He had not had a sudden attack of dyspnœa, and had never experienced pain in the chest.

Progress.—On July 10th the patient complained of anorexia and "acid" type of indigestion, attended by diarrhœa. There was no abdominal pain or discomfort. Some relief was obtained from the administration of a mixture containing bismuth and opium. On the 17th his general condition was rapidly deteriorating. Diarrhœa was troublesome, but there was no abdominal pain. Abdomen now slightly distended, with general tenderness over the lower half, but not localised. Sudden cyanosis and death occurred on the same day.

The temperature throughout was fairly consistent—98° F. in the morning and 102° in the evening, with terminal collapse.

Autopsy Findings.—Wasted man; slightly dilated venules on face. Right lung: weight 28 ounces; pleural adhesions at apex; lung bound down on its diaphragmatic surface; diffuse fine tuberculous broncho-pneumonia in lung tissue, showing considerable fibrosis and emphysema, with much black pigment deposit throughout;

heavier infiltration, with cavitation and caseation, in the apical portions of both upper and lower lobes. Left lung: weight 30 ounces; general emphysema, with scattered tuberculous broncho-pneumonia, in fibrosed tissue, and much pigment deposit generally; cavitation at the apex of upper lobe. (Although the right pleural space was found clear except at apex and base, the condition did not now correspond with the degree of partial collapse of lung revealed by X ray examination 14 days previously. The assumption was therefore that the spontaneous pneumothorax was very recent and rapidly absorbed.) Heart: Weight 12 ounces; pericardium clear; general "flabbiness," with soft walls, of the "faded oakleaf" type; valves competent; coronary arteries appeared normal.

Peritoneum: chronic inflammation; considerable quantity of seropurulent fluid, both in the general peritoneal space and in pockets amongst coiled intestine, particularly in the ileocæcal region. Gastro-intestinal tract: tuberculous ulceration of the ileum; ileocæcal tuberculosis, of the hypertrophic type. Appendix: large, thickened, twisted; in condition of subacute inflammation; perforation seen in more acutely inflamed area at about midpoint of length; much lymph on peritoneal coat; opening from the cæcum into the appendix very minute.

Liver: weight 76 ounces; pale "fatty" type, with congestive changes; perihepatitis marked. Spleen: weight 11 ounces; mushy. Kidney: right, weight 6 ounces; left, weight 8 ounces; both slightly engorged, with narrowing of cortex. Intracranial contents not examined.

Histopathology.—(1) Section of lung showed tuberculous granulation tissue, associated with silicotic fibrosis. Ziehl-Neelsen staining showed tubercle bacilli. (2) The mucous and peritoneal coats of the appendix were infiltrated with tuberculous granulation tissue, but NO tubercle bacilli were found on staining.

COMMENT

The first case is one of pulmonary tuberculosis, with death due to acute general peritonitis, following perforation of a tuberculous ulcer of the ileum into the general peritoneal space. It may be noted that although extensive ulceration of the bowel was found at autopsy, no symptoms of intestinal infection occurred until about seven weeks before death.

The second case presents several problems. The condition of the appendix may have been simply an example of perforation due to tuberculosis. There is, however, at least the possibility that the case was one of acute appendicitis, of the obstructive type, in an appendix already the seat of chronic tuberculous infection. The opening of the appendix into the cæcum was found much contracted, and it would have taken little to cause obstruction. There would then have been a suggestive parallelism with the case of gangrenous appendicitis caused by obstruction from carcinoma of the cæcum, previously reported in this journal.

Noteworthy also is the rather unusual concurrence of the hypertrophic and the ulcerative type of tuberculosis of the intestine. Boyd [1] considers the former probably bovine in origin, and the latter almost always human in type.

I wish to thank Dr. J. Bell Ferguson, State director of tuberculosis, for permission to publish the records of these cases; and to Dr. H. O. Johnston, medical superintendent of the Austin Hospital, Heidelberg, for preparation of the microscopic sections in Case 2.

REFERENCES

1. Boyd, W.: Text-book of Pathology, London, 1932, p. 465, et seq.
2. Kaufmann, E.: Pathology: translation by G. P. Reimann, Philadelphia, 1929, vol. i., p. 797.
3. Same author: Ibid., vol. ii., p. 840.
4. Muir, R.: Text-book of Pathology, London, 1926, p. 445.
5. Allen, H. B.: Pathology, Melbourne, p. 247.
6. Parker, G. E., and Rosenthal, D. B.: THE LANCET, 1933, ii., 1089.

Clinical and Laboratory Notes

COMPLETE INVERSION OF THE UTERUS

BY JAMES COOK, F.R.C.S. Edin., D.P.H.
DEPUTY MEDICAL SUPERINTENDENT, BIRKENHEAD MUNICIPAL HOSPITAL

ACUTE inversion of the uterus is admittedly one of the rarest complications of labour. The following case is of especial interest because there seems to be little doubt that the inversion, which was complete, was of the spontaneous variety.

Mrs. A., a well-developed woman of 19¾ years, was admitted to Birkenhead Municipal Hospital at 8.20 P.M. on April 27th, 1935. She had been delivered of her first child at 7.30 P.M. on the same day. Throughout her pregnancy she had enjoyed good health. Her Wassermann reaction was negative and there was no evidence of renal or other organic disease. Her last menstrual period occurred on August 25th, 1934.

Labour commenced at 9 A.M. on April 27th, and there was a show at 10 A.M. By 6 P.M. the pains were very good and when the family doctor arrived he gave a general anæsthetic and applied low forceps, delivering a living female child of 5 lb. 8 oz. at 7.30 P.M. There was thus no question of a precipitate labour, and the cord was neither absolutely nor relatively short. The doctor kept his hand on the fundus, but made no attempt to expel the placenta. About half a minute after the birth of the child the placenta presented at the vulva, and a few minutes later, following a somewhat violent expulsive effort, it was forcibly expelled together with the uterus completely inverted. At first the medical attendant was under the impression that he was dealing with something in the nature of an abnormal twin pregnancy, but he soon appreciated the true state of affairs. There was excessive uterine hæmorrhage and considerable shock, and the doctor having stripped off the placenta (which was not pathologically adherent) had the patient removed to hospital.

On admission the girl was extremely exsanguinated and her pulse was all but impalpable. The inverted uterus was lying between the thighs on an ordinary blanket on which there was quite a pool of blood. The theatre happened to be ready for another emergency, so by 8.30 P.M.—i.e., ten minutes after admission to hospital—the patient was in the theatre and a blood transfusion started, the mother being the donor; both she and the patient belonging to Group IV. (Moss). A pint of citrated blood was given intravenously, the patient was anæsthetised with gas-and-oxygen, and the vulva and the inverted uterus having been cleansed as thoroughly as possible with warm biniodide solution, the uterus was returned to its normal position without great difficulty.

During the operation the patient's condition actually improved, and the blood transfusion was followed by intravenous normal saline to which had been added 50 c.cm. antistreptococcal serum and gr. 1/200 strophanthin. The uterus having been replaced 2 c.cm. Pituitrin was given intravenously. The uterus remained flabby in spite of bimanual massage, and the pituitrin seemed to have little or no effect so far as the uterus was concerned.

A warm intra-uterine douche of weak iodine solution was likewise without effect, and for fear of a severe hæmorrhage on recovery from the shock, the uterine cavity was packed with sterile gauze. When the patient left the theatre at 9.15 P.M. the pulse, though still rapid, was relatively well filled and her general condition was improved. During the night 1·75 c.cm. Coramine with 7 minims of adrenaline were given three-hourly, hot-water bottles and glucose drinks being ordered.

On the following morning (April 28th) the patient felt much better, but the pulse was again poor and 160 to the minute. She was therefore given 10 per cent. glucose in saline (to one pint of which 7 minims of 1/1000 adrenaline and 5 c.cm. coramine were added) by the continuous drip intravenous method, one pint being given in three hours.

The pulse-rate dropped and the patient's general condition improved distinctly. By the time four pints had been given her condition ceased to cause concern. The intra-uterine pack was removed on the afternoon of the 28th, when 1 c.cm. pituitrin was given. Progress was satisfactory until the evening of the 29th, when the temperature rose to 99° F. On the morning of the 30th flatulent distension of the abdomen made its appearance, but was relieved by turpentine enemata. On palpation the uterus appeared to be normal, and intramuscular Ernutin was ordered thrice daily.

The lochia was rather offensive and the patient was gradually propped up to promote natural drainage. On May 1st the lochia were very offensive and the temperature reached 102° F. Kharsulphan was given intramuscularly and Dettol douches ordered thrice daily. Intra-uterine glycerin was started on May 1st and continued daily. On May 2nd, while the lochia remained offensive, the temperature started to drop, her appetite improved, and there was a gradual return to normal health.

I have reported this case in some detail, because from the history given by the patient's doctor and by her mother (who was attending as a qualified midwife and in the circumstances a very reliable witness) the case appears to be definitely one of spontaneous inversion. The mortality of acute inversion of the uterus is about as difficult to assess as its frequency, but in treatment there seems to be a tendency to overstress the benefits to be derived from "masterly inactivity." Given suitable measures to combat shock, the early reduction of the inversion seems to be indicated, while this can still be done comparatively easily and the uterine tissues have not yet been unduly damaged.

My thanks are due to Dr. F. Cauchi, who administered the anæsthetic, and to Dr. H. Fuld, who gave the blood transfusion. I have also to thank Mr. R. A. Grant for permission to publish these notes.

"IDIOPATHIC" STRIÆ ATROPHICÆ OF PUBERTY

By F. Parkes Weber, M.D. Camb., F.R.C.P. Lond.
SENIOR PHYSICIAN TO THE GERMAN HOSPITAL, LONDON

In ordinary cases striæ atrophicæ or striæ cutis distensæ can be explained as representing a method of cutaneous accommodation towards distension (physiological or pathological) when the skin is relatively insufficient—that is to say, unable to adjust itself by its normal elastic distensibility. In such cases a relatively too rapid growth or increase in bulk of the parts below the skin, or a cause of chronic distension of some kind—such as a relatively excessive growth of subcutaneous fat, muscle, or bone (especially connected with puberty), mammary gland, the pregnant uterus, ascites, tumours, or subcutaneous œdema—leads to a splitting or cleavage in the deeper parts of the cutis, manifested on the surface by the appearance of striæ atrophicæ, which are at first generally red or purplish, and in time gradually become white and smaller as they heal up.

But here I wish to refer only to those case of striæ not due to stretching of the skin; that is to say, the cases in which striæ have developed apparently in the absence of any special distension—in the absence of pregnancy, ascites, tumours, subcutaneous œdema, excessive subcutaneous fat, and other usual causes. In such cases the ordinary growth of the long bones, muscles, and subcutaneous fat seems to be associated with some insufficiency of the cutis (with perhaps deficiency of elasticity) which prevents the skin from adjusting itself to the parts beneath, excepting by the process of multiple cleavage—that is to say, by the formation of "striæ atrophicæ." Striæ of this mysterious kind occur occasionally in apparently healthy, and in even athletic, individuals about the period of puberty, the skin failing to keep pace with the normally rapid growth of certain parts of the body, such as the shoulders, pelvis, and thighs. In 1932 I saw typical small striæ in the upper arms and upper parts of the thighs that developed without obvious cause in a muscular male student at an English university. Striæ, *in the absence of the ordinary causes*, are however still better known to occur in connexion with enteric fever (notably the "striæ patellares") and certain other infections, although even in such cases the selective distribution of the striæ, and whether they are symmetrical or more or less unilateral or not, as I have elsewhere endeavoured to explain, must be due partly to mechanical causes, such as the position of the patient in bed, arrangement of pillows, &c.[1]

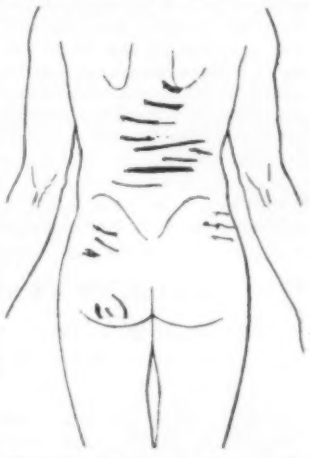


Diagram showing position of the striæ on the patient's back and buttocks.

Striæ form a prominent feature in the clinical syndrome attributed by Prof. Harvey Cushing to pituitary basophilia or basophilic adenoma of the pituitary gland, and in 1932 I suggested that the relative insufficiency of the cutis, which is a part-factor in the causation of the cutaneous striæ in so-called "idiopathic" and post-infection cases, may be due to a *temporary* basophilic hyperpituitarism associated with the period of rapid growth at and following puberty.[2]

I have recently seen a remarkable example of *idiopathic striæ atrophicæ of puberty* in a rather thin, tall girl, aged 13½ years. She seems bodily and mentally developed two years or so beyond her age, a good tennis player, but somewhat lanky and "overgrown," and inclined to slouch with bent back when sitting at her school work. Her height is 167 cm. and her weight is 51·5 kg. She commenced to menstruate at 12 years of age and her mammæ and pubic hair are fairly developed. She has a series of bright red transverse striæ ("vergetures") over her back from the level of the tenth vertebra downwards (see Figure). There are several older (white) striæ over the outer upper parts of both thighs and there are a few smaller red striæ over the left gluteal region. It should be noted that her mother has had white striæ on the outer upper portions of both thighs since puberty, though she feels sure that none of these striæ were ever red.

In the case of the present girl the red transverse striæ over the back were first noticed by her mother

[1] On this whole subject cf. Weber, F. Parkes: Unilateral Striæ Atrophicæ, Practitioner, 1917, xcix., 453; also Weber: Cutaneous Striæ, Brit. Jour. Derm. and Syph., 1926, xxxviii., 1, and in discussions, Proc. Roy. Soc. Med., 1924, xvii. (Sect. Derm., p. 45), and 1927, xx. (Sect. Dis. Child., p. 11).

[2] Weber, F. Parkes: Urol. and Cutan. Rev., 1932, xxxvi., 731. This suggestion is not the same as that which I made in a short paper on the Causation of Striæ Atrophicæ Cutis (Vergetures), Brit. Med. Jour., 1928, i., 255.

about Christmas 1934, when they are said to have looked like very thin scratches; at that time the patient had a slight attack of whooping-cough. In other respects she has enjoyed good health. The causation of these "idiopathic striæ atrophicæ of puberty" is unknown, unless my above suggestion on the subject is correct. Anyhow, the patient in question developed a tendency to the formation of such striæ at puberty, as her mother did, and probably her habitual stooping over her schoolwork has determined the position of the striæ—namely, on her back at right angles to the convexity of the bend. It is possible that the infection with whooping-cough played a part in the causation of the striæ (analogous to the better-known part played by enteric fever in other cases) in association with the somewhat precocious onset of puberty. The bright red stripes across her back were very annoying to the patient during summer at the seaside in regard to bathing.

A CASE OF EUNUCHOIDISM

By Ernest H. Capel, M.D., M.R.C.P. Lond.

ASSISTANT MEDICAL REGISTRAR, MIDDLESEX HOSPITAL, LONDON

A man, aged 35, was admitted to the Middlesex Hospital in March, 1935, complaining of increasing weakness and continued growth in height.

Family History.—Both parents were Irish, quick-tempered, and heavy drinkers. The father died at 64 from cancer of the jaw; the mother at 45 from an accident. One of the mother's brothers is said to be very tall. The patient is the youngest but one of eight siblings whose ages range from 33 to 52. They are all healthy and all except one are married and have two or more healthy children.

Personal History.—No details of early years are known. He attended school from 5 until 14 and was rather above the average in ability and usually at the top of the class. On leaving school he was a metalworker until the age of 21, and for eighteen months a ship's steward. He then went back to factory work until three years ago, since when he has been a butler. His standard of work has always been satisfactory.

Previous Medical History.—Operation at 13 for double inguinal hernia, which recurred and was operated on again at 15. Asthma, due to sensitivity to straw, developed at the age of 23 but ceased when he gave up working with straw. He has fractured several bones at various times, but there is no reason to suppose that his bones are unusually brittle. Sexual interest has been normal, but diminishing during the past few years, and there has never been any homosexual inclination. Masturbation is stated to have occurred since childhood until quite recently. At 23 he married and had normal though infrequent intercourse. An erection was obtained followed by orgasm but there was never any emission. His wife never became pregnant.

History of Present Complaint.—The patient is still steadily increasing in height, and the feet and hands are also growing so that he requires progressively larger shoes. There has never been any growth of hair on the face, axillæ, or chest, and the pubic hair, which first appeared at 18, has always been scanty and of female distribution. The voice has always been high pitched and has never broken. He feels the cold badly and prefers hot weather. During the past two years he has complained of exhaustion after quite moderate exertion. He has lost two stone in weight in the past year.

Examination.—Weight, 10 st. 6 lb.; height, 6 ft. 2½ in.; span, 6 ft. 9½ in. Temperature 98·4° F. and pulse-rate 70, both remaining normal during the stay in hospital. As can be seen in the illustration the patient was tall and thin with the limbs slender and excessively long in proportion to the body. The hands and feet were large in proportion and there was no tufting of the phalanges such as is seen in acromegaly. The skull was normal in size and appearance and there was no enlargement of the jaws. Only six teeth were present, the others having been removed. They were in good condition. The skin was pale, fine, and dry and gave a prematurely aged appearance due to the presence of many small wrinkles. No hair, other than lanugo hair, was present except for that on the scalp and a scanty pubic growth. The external genitalia were very small, and the testes, which were both present in the scrotum, were about the size of cherry stones. Scars were present on the abdominal wall from the previous operations. Clinical examination revealed no abnormality in the lungs, heart, abdomen, or central nervous system. Blood pressure 130/80. The ocular fundi were normal and the visual fields full. Mentally he was of good average intelligence. He was quiet and retiring and very sensitive about his condition. He had frequent mild fits of depression.

Photograph of the patient.

Special Investigation. — Blood count: red cells, 5,370,000; hæmoglobin, 100 per cent.; colour-index, 0·9; white cells, 10,000; polymorphonuclears, 62 per cent.; lymphocytes, 27 per cent.; monocytes, 10 per cent.; eosinophils, 1 per cent. Basal metabolic rate, minus 20 per cent. Fractional test-meal: high free and total acidity—0·27 and 0·23 per cent. respectively. Aschheim-Zondek test negative. Blood-urea 17, and non-protein nitrogen 21 mg. per 100 c.cm. Glucose-tolerance test within normal limits. Resting blood-sugar 93, highest 135 mg. per 100 c.cm. half an hour after taking 50 g. of glucose. Radiography: no thymus shadow; calcified glands at both lung roots; lower end of radius and ulna, upper end of humerus, upper end of radius, acromion process, upper and lower ends of femur and upper and lower ends of tibia and fibula showed non-union of epiphyses; pituitary fossa small, but showing no other abnormality.

Tandler and Gross [1] apply the term eunuchoid to those human beings whose appearance is entirely that of castrates although their sex glands have never been removed, and they have divided them into two types, the tall and the obese. Zondek [2] states that obesity is one of the common characteristics and even in the tall type some degree of obesity is usually present (though it may be only relative) in the sites of predilection—the breasts, the mons pubis, and the hips. He regards excessive vertical growth as a feature distinguishing eunuchoidism from pituitary obesity, attributing it to delayed union of the epiphyses. Union usually occurs by about the thirtieth year. The limbs tend to be long and slender, the tubular bones long, and the skull small in circumference. The lower part of the body is longer than the upper part and the fingers may almost touch the knees. Genu valgum and pes planus are common.

In these patients the development of the generative system is deficient and the secondary sexual characters do not appear. Hair fails to grow on the face or body, the voice does not break, and the larynx remains small, soft, and cartilaginous. Sexual desire is usually absent though occasionally it is normal or even excessive (Bauer [3]). The skin is pale and thin and the muscles poorly developed and feeble. The heart and aorta are often small and the blood pressure low. The blood picture is usually

normal but may show a lymphocytosis and more or less mononucleosis (Guggenheimer [4]). The basal metabolic rate may be diminished or normal. A persistent thymus is said to be found frequently and the thyroid may be enlarged. There is usually nothing to indicate any abnormality of the pituitary.

The ætiology is almost always obscure. Hypoplasia of the sex glands is always present and often the testes are undescended. As a rule it is impossible to assign a cause for this aplasia.

The case described is an example of the tall type and shows only slight relative obesity. The patient has most of the essential features of the condition; the presence of sexual desire with the ability to obtain an erection with orgasm is uncommon and interesting. That atrophy of the testis may follow injury to the spermatic artery, an accident which sometimes occurs during operation for inguinal hernia, is well known, and the history of operation for double inguinal hernia at the age of 13 and again two years later for a recurrence makes it necessary to consider this as a possible cause. The rather late age at which the operation was performed, the extensive changes present in the patient, and the fact that the testes are small but not hard and fibrotic makes this explanation seem improbable. Treatment in this case has so far not been attempted. There is at present no potent male sex hormone available at reasonable cost, and the results of testicular grafting are of such a temporary nature that it was not considered worth while.

I wish to thank Dr. E. A. Cockayne for permission to publish this case, and the Courtauld institute of biochemistry and the Bland-Sutton institute of pathology for the biochemical and pathological investigations.

REFERENCES

1. Tandler, J., and Gross, S.: Die biologischen Grundlagen der sekundären Geschlechtscharaktere, Berlin, 1913.
2. Zondek, H.: Diseases of the Endocrine Glands, London, 1935, p. 415.
3. Bauer, J.: Innere Sekretion, ihre Physiologie, Pathologie und Klinik, Vienna, 1927.
4. Guggenheimer, H.: Deut. Arch. f. klin. Med., 1912, cvii., 518.

MEDICAL SOCIETIES

HUNTERIAN SOCIETY

Dr. W. BRANDER was unfortunately prevented from delivering his presidential address to this society on the

Challenge of the Chronic Sick

which was read in his absence by Dr. ANDREW TOPPING on Oct. 14th. The last half century, said Dr. Brander, had witnessed a great realisation of responsibility on the part of the public for the acute sick, but no informed person could hold that the provision at present existing for the care and treatment of adult chronic sick is on a level with our scientific knowledge of what is required. It would be convenient to consider the facts under four headings.

FOUR FACTORS IN THE SITUATION

1. *Development of Public Services.*—Most of the inadequacies of the treatment of the chronic sick were, he said, traceable to the obsolete Poor Law. It was true that the Elizabethan principle was simply to relieve the needs of the sick without reservations or limitations, but in practice the facts were in direct opposition to this principle. Those responsible for the institutional care of the chronic sick had little use for the misfits, the unfits and derelicts among the population. About 100 years ago Sir James Shuttleworth, assistant commissioner at Somerset House, reported on the parish workhouse in Norfolk in these terms:—

> "It was the receptacle of age, vice, disease and infirmity. The aged and infirm and the infants were promiscuously mingled with sturdy, able bodied paupers, idiots and the sick, in groups which presented to the eye merely a picture of common misery or depravity. In such houses the aged and infirm were tormented by their co-mates in want, the sick were left to waste the wretched remnant of their lives with little care or sympathy; the able bodied pauper lounged in listless apathy with the idiot over the fire. The sexes could scarcely be said to be separated at night in the miserable and ill arranged apartments."

It was not until about 1865 that sick wards of workhouses were officially discouraged, and separate infirmaries built for the chronic sick. They were however not to remain for long in what was, very often, excellent accommodation. Owing to the demands for admission of acute medical and surgical cases, the accommodation for the chronic sick was gradually curtailed and they were displaced once again into the sick wards of the mixed workhouses. Twenty-five years ago the proportion of acute to chronic sick in many of the poor-law infirmaries was 20 per cent.; in 1930 the position was completely reversed—the proportion had risen to 80 per cent. At the present time the majority of the adult chronic sick patients chargeable to local authorities are treated in non-appropriated mixed institutions. In other words, being inmates of poor-law establishments, they are "paupers." Buildings and equipment are often distressingly insufficient and inadequate. The fundamental fallacy in administration has been the assumption that the needs of the chronic sick were all alike and could be met by the simplest form of care. A survey made by the L.C.C. in 1931 of their transferred institutions showed that the facilities for the care of over 3000 chronic sick were insufficient, inadequate, and misused.

2. *Attitude of the Medical and Nursing Professions.*—It was, said Dr. Brander, well known that the medical staffs of voluntary and municipal hospitals sometimes objected to having beds in their acute wards occupied by chronic patients. This objection was often shared by the nurses. The presence of the chronic patients bars the way for the admission of more interesting acute cases. This feeling was in part due to a sense of futility in the treatment of the chronic patient. The treatment needed is so often dependent on social and economic factors over which the doctor rarely has control. Again, whether due to some defect in our system of medical training or other cause, medical students are dominated by what might be called the cult of the "acute." While an acute disease rouses whole-hearted enthusiasm, a chronic disease is apt to be regarded as more or less dull and uninspiring. In poor-law institutions mainly occupied by the chronic sick the visiting medical officer's round was often very casual; he frequently regarded the wards as museums in which the only interest lay in seeing occasionally a few rare diseases in their later and incurable stages. Under such treatment the chronic patients lost faith in doctors and nurses, and with the loss of morale their physical state deteriorated.

3. *Economical and Social Factors.*—In acute disease, social and economic conditions played only a minor

part; medical considerations are the paramount ones. In chronic disease the picture was different; the social and economic elements were closely associated with the purely medical, and were in most cases of greater importance. Because of his chronicity, if for no other reason, the patient's family suffers. Disorganisation, unemployment, destitution, and shattered morale result in the picture of the adult chronic invalid. The patient becomes such a burden on the children that they welcome any means to be rid of him.

4. *Difficulties in Administration.*—Municipal hospitals had to contend with many obstacles that do not affect the voluntary hospitals. One of them was the obligation to admit any poor person whose condition demands medical or surgical treatment, and who is unable to secure it elsewhere. Another obstacle was their inability to limit the number of patients. They could not discharge a chronic patient who needed institutional care unless there was room for him in another municipal hospital or institution. When the patient was likely to require prolonged medical and nursing care these difficulties led to the vexing "system of transfer," in which unfortunately the transfer was often dictated less by the needs of the chronic patient than by the pressing demands of the acutely ill patient.

MEDICAL ASPECTS OF CHRONIC ILLNESSES

He would not consider, Dr. Brander said, chronic mental diseases or pulmonary tuberculosis, because in each of these fields public responsibility had been recognised, and excellent provision made. The great undifferentiated group, known as the "chronic sick," included all other types of chronic disease. For the most part they were diseases of slow development; there was little homogeneous among the sufferers. Their disability was due largely to cardiovascular disease, diseases of the nervous system, non-tuberculous diseases of the lungs, rheumatism in its various forms, chronic kidney disease, diabetes mellitus, and other metabolic diseases. For most of these affections there was no permanent cure, although in many instances the disease might be arrested and the patient gain years of useful life.

Chronic disease affected persons of all ages, from the beginning to the end of life. Among the chronic sick were babies injured at birth and crippled by congenital defects; children under 16 years of age, and young adults with orthopædic troubles, heart disease (congenital or acquired), rheumatism, or diseases of the nervous system; the middle-aged group, between 40 and 60 years, who constituted a very large proportion of those demanding hospital care; lastly, the aged, 70 years old or more.

Adequate treatment had been retarded in the past, he said, by two misconceptions regarding the nature of their disease: (1) chronic diseases had practically been labelled incurable; (2) they have been too closely associated with that decline in well-being which is called senility.

In spite of its grave significance, the term incurable had often been employed too lightly in the case of many chronic sick. As medicine progressed the conception of incurability was changing, and physicians and surgeons to-day were not slow in recognising the folly of calling a disease incurable because they were unable to discover a cure. Little more than a decade ago diabetes, Addison's disease, acromegaly, syphilitic diseases of the central nervous system, among others, might have been dubbed incurable. How different was the outlook of such patients to-day.

True senile decay first became manifest, as a rule, after the age of 70; it often did not occur till much later. Senile symptoms, often seen in the sixth or seventh decade, should not be designated as old age, when some insidious or obscure disease might be the causa causans. Use of the term senile implied the assumption of inevitableness leading to these victims of diseases being placed out of sight in homes for the remainder of their days, rather than regarded as patients requiring medical treatment.

THE CHANGING OUTLOOK

During the past twenty years there had, said Dr. Brander, been evidence of changing sentiment towards chronic diseases. Many voluntary hospitals and clinics, as well as social organisations in different parts of the country, had been actively promoting treatment, research, and public education, especially for malignant diseases, diabetes, and rheumatism. But the great majority of chronically ill still received no organised attention. This was beginning to be appreciated by those responsible for medical education. The medical school of Columbia University recently issued a circular saying:—

> "Patients suffering from chronic diseases form the bulk of the physician's private practice, and because of the complexity and long duration of their illnesses, they are among the most difficult whom he is called on to treat. Because of the belief that this aspect of the practice of medicine does not receive the consideration it deserves, special stress will be laid throughout the courses on the diagnosis and treatment of chronic diseases."

Thanks to the Local Government Act, 1929, there was a decided trend towards a general recognition of responsibility by public authorities for the enlightened care and treatment of the chronic sick. In spite of the two Royal Commissions of 1832 and 1909, recommending better classification of inmates of workhouses, the L.C.C. soon recognised that there had been no consistent policy amongst the late twenty-five boards of guardians. The L.C.C. decided at once to abolish the mixed workhouses, with their hotchpotch of unclassified able bodied, aged, infirm, and chronic sick. At the same time, they launched comprehensive schemes for the reconditioning of certain institutions for ultimate use as hospitals. Perhaps the L.C.C.'s greatest contribution to date was the establishment of special units or clinics in the general and special hospitals. For children there were units for congenital defects, orthopædic troubles, heart disease, rheumatism, diseases of the central nervous system, and congenital syphilis; for patients of all ages units for cancer, urological diseases, encephalitis lethargica, surgical tuberculosis, and chronic arthritis.

Two other units demanded special mention. Realising what could be achieved in the management of diabetes by expert medical treatment, diet regulation, and the whole-hearted coöperation of the patient, special units were set up at certain East End hospitals in whose area there was a high incidence of diabetes. Expert guidance at mental observation wards and psychiatric clinics is found to be of great help in guarding against the lapsing into chronic invalidism of those who are curable in the earlier stages of their disease. Such experts are allocated to the special units attached to certain hospitals. Another important development was the payment of an annual grant by the L.C.C. to the district nursing association for services to the chronic sick at home.

SPECIAL HOSPITAL FACILITIES

Those who suffer from chronic disease have, Dr. Brander went on, the right to expect medical and nursing care such as only the well-equipped modern hospitals can provide. The medical profession and the more enlightened among the public are no longer satisfied with the old attitude. At present local authorities are divided as to whether (1) to reserve hospitals entirely for the acute sick and others for the chronic sick; (2) to have hospitals in which both are accommodated. The L.C.C. favour a combination of acute and chronic pavilions in the same curtilage; when the present reconstruction is complete London will have over 2000 chronic sick beds associated with seven first-class acute general hospitals. One argument in favour of the mixed hospital deserves emphasis. It is desirable that the nurse's training should include care of the chronic sick; their psychology is very different from that of the acutely sick. The nurse who attends such patients month by month has a sounder knowledge of many branches of her profession than her colleagues who have trained in general hospitals. Whatever policy be adopted, accommodation should have regard to the special needs of the chronic sick—e.g., wide doors and corridors to permit the free passage of wheeled chairs, capacious alcoves or closets for their storage. The whole equipment and medical organisation should be as complete as that for the acute patient. Patients should be classified in accordance with the nature of their disease and their age. Special services such as occupation therapy, physiotherapy, and social services are essential. In short, the modern chronic hospital should be a centre for medical education and research, offering special opportunities for study of the ætiology, treatment, and prevention of chronic diseases.

Dr. Brander concluded with an appeal for the complete coördination between all agencies, public and voluntary, dealing with the chronic sick problem from the hospital, institutional, and domiciliary standpoint. When orderly ideas had been formulated, and systematic planning established, the public would face the necessity for a change of policy. They would come to realise that their responsibility was at least as great for the chronic as for the acute patient, and that poverty was irrelevant. They would find that the present haphazard methods were imposing a tremendous burden of expense on the community. They would take steps to prevent the enormous waste of money on patent medicines and on various healing cults. They would come to regard the prevention of chronic disease as a pressing public health problem, and money expended in solving it as an investment which would ultimately pay large dividends.

REVIEWS AND NOTICES OF BOOKS

Diagnosis and Treatment of Skin Diseases

By J. H. SWARTZ, M.D., Instructor in Dermatology, Harvard Medical School; and MARGARET G. REILLY, R.N., Graduate, Massachusetts General Hospital Training School for Nurses; Supervisor of Skin Diseases, Massachusetts General Hospital. New York: The Macmillan Co.; London: Macmillan and Co., Ltd. 1935. Pp. 316. 15*s*.

THE collaboration of doctor and nurse in the production of a text-book is something of a novelty, at least in dermatological literature. The outcome of their joint effort will certainly appeal to the practitioner who aspires to something more than a prescription for calamine lotion, or advice to apply ultra-violet rays. Both nursing and ambulatory treatment are described in minute detail, no less than 5½ pages of type being devoted to the treatment and prevention of epidermophytosis alone. There is a long chapter on syphilis. The technique of intravenous injections is illustrated by numerous line drawings and diagrams of the requisite apparatus for use by doctor and nurse. Precise instruction on the care of needles and syringes is supplied, and the public health and social aspects of the disease are well discussed. Some clinical photographs illustrate the text. A chapter on the care of the normal skin is a new departure in a text-book on dermatology; it includes sections on the various types of baths available for cosmetic purposes, on the care of the feet and hands, and on special methods for the use of those afflicted with dry or oily skins. The treatment of hypertrichosis, freckles and wrinkles, and the seborrhœic scalp are included in this section, and the authors have even invaded the province of the hairdresser in discussing "permanent" and other methods of waving the hair. It is useful to learn, for instance, that a greasy scalp will probably benefit by "permanent waving," while the disadvantages associated with the dry type of scalp will be aggravated by this desiccating procedure. Here, too, will be found useful so-called "tonic" prescriptions for use with dark and with light hair, designed to prevent the risk of undesirable modifications of a carefully selected and expensive tint. The section on the care of a baby's skin from the moment of birth will provide information not to be spurned even by the most experienced. There is a most welcome chapter on the exanthemata, while dermatology proper, which occupies the main bulk of the book, receives ample consideration on the regional basis. There are 21 charts or tables pertaining to the differential diagnosis of the commoner dermatoses, with clinical photographs to illustrate their main localisation and characteristic features.

We welcome this original contribution to the teaching manuals.

The Body and its Health

By WINIFRED CULLIS, C.B.E., M.A., D.Sc., LL.D., Sophia Jex-Blake Professor of Physiology, University of London, London (Royal Free Hospital) School of Medicine for Women; and MURIEL BOND, M.Sc., Assistant Lecturer in Physiology at the same school. London: Ivor Nicholson and Watson Ltd. 1935. Pp. 216. 3*s*. 6*d*.

Prof. Cullis and Miss Bond believe that the human body is badly treated because its possessors do not bother to find out how to make the best use of all its powers. It is their view that some knowledge of the body and of the laws of hygiene would result in a healthier and happier community, and they have written this book for the purpose of popularising this knowledge among young people. The publisher's jacket states that the book is intended to appeal to boys and girls of school age, but it will probably be found more useful in the hands of the teacher of hygiene than in those of the members of the class. There may be no satisfactory way of avoiding the use of many scientific terms in presenting a subject of this kind, but in some places such terms are

perhaps taken too much for granted and their explanation is deferred rather too long. The illustrations are lavish and clear, but school-children may be mystified by such a legend as that on p. 50: "Diagram showing localisation of function in the cortex of the cerebral hemisphere."

The student is taken through a comprehensive course, beginning with the living body as a whole, and going carefully into the various systems and their functions. The skeleton, muscles, nerves, special senses, circulation, respiration, digestion, kidneys and skin, and the ductless glands are dealt with in turn, and various matters of everyday life, including food in the home, clothing, care of the bowels, and ventilation, are discussed in separate chapters. For practical usefulness special praise may be given to the sections on respiration and ventilation, and to the short chapter on the special senses as a whole. Much helpful advice is given on diet, with a series of tables showing the sources of the various elements required to ensure satisfactory nutrition. The book is well printed and indexed, and is remarkably cheap.

Materia Medica, Pharmacy, Pharmacology and Therapeutics

Twenty-second edition. By WILLIAM HALE-WHITE, K.B.E., M.D. Lond., M.D. Dub., LL.D. Edin., Consulting Physician to Guy's Hospital. Revised by A. H. DOUTHWAITE, M.D., F.R.C.P., Physician to Guy's Hospital; Physician to All Saints' Hospital. London: J. and A. Churchill Ltd. 1935. Pp. 552. 10*s*. 6*d*.

IF any text-book can be said to have stood the test of time, it is Hale-White's Materia Medica. First published in 1892, it has gone through edition after edition, and now, only three years after its predecessor, appears the twenty-second edition. The general plan of the work has not been altered, but Dr. Douthwaite has found it necessary to make considerable alterations and additions to the text. The chapter on the actions and uses of digitalis has been rewritten, additions have been made to the articles on sera, vaccines, vitamins, and nitrites, and the author has tried to simplify the study of the barbiturates by introducing Mutch's table. Non-official and trade preparations have not been neglected, and the section on pharmacy has been revised. The whole production gives a full account of modern pharmacology and therapeutics, and is well up to the standard of previous editions.

Groedel's Röntgendiagnostik in der Inneren Medizin

Fifth edition. By HEINZ LOSSEN, X Ray Director of the Hospital zum Heiligen Geist, Frankfurt.a.M. Munich: Lehmann. 1935. Pp. 187–398. With 104 illustrations and 54 plates. M.24.

THE second part of this well-known atlas and text-book has been almost completely rewritten and largely reillustrated for this fifth edition. The companion volume dealt chiefly with physics, technique, and organisation; this one in some seven chapters covers the skull, teeth, sinuses, chest, and diaphragm. The standard attained is high, particularly in the chest sections, and each chapter is written by one who can speak with authority. The illustrations are either photographic prints of radiograms or clear diagrams. It is regrettable that here as in many other text-books it is the extreme or the unusual that is pictured rather than the borderland case, often met with in daily practice, which leads the radiologist to seek help from a text-book. This is particularly true as regards the exceptionally fine reproductions in the dental section. The radiographic technique of each division is simply and adequately described and the discussion of each subject is sufficient. There is no index, nor even a list of chapter headings; presumably these will be published in a later volume of the series.

Elementary Textbook of Anatomy

By HENRY E. CLARK, C.M.G. New edition, revised by JOHN GRAHAM, B.Sc., M.B., Ch.B., F.R.F.P.S., Professor of Anatomy in the Anderson College, Glasgow. London and Glasgow: Blackie and Son Ltd. 1935. Pp. 278. 6*s*.

THIS little book, for junior students and nurses, appears to be reliable within the necessarily narrow limits in which it is set. It seems to have been revised with care, and the facts it presents are simply and clearly set out. The terminology used is rather out of date in some places, but that is a minor matter, and we expect that the book will fulfil its purpose very well.

St. Bartholomew's Hospital Reports

London: John Murray. 1935. LXVIII. Pp. 351. 21*s*. (subscribers 15*s*.).

THIS volume is remarkable for the number and variety of the subjects discussed in its pages, and it serves to show how knowledge may be gained from the study of carefully prepared clinical records. This is true particularly of the papers on pink disease by Dr. C. F. Harris, on fractures of the carpal scaphoid by Mr. J. P. Hosford, on carcinoma of the stomach by Mr. R. W. Raven, and on Raynaud's disease by Prof. Paterson Ross, all of which draw attention to the practical problems of prognosis and treatment. The results of two new methods of treatment are recorded—the X ray treatment of carcinoma of the œsophagus recently modified by Dr. W. M. Levitt, and Dr. R. G. Macfarlane's work on the treatment of hæmophilia by snake venom, which is noticed on another page. In the collection of five articles which constitute a symposium on infections of the urinary tract special attention must be directed to those by Mr. W. Girling Ball and Dr. L. P. Garrod. Mr. Ball has been able to show in a striking series of cases how frequently unilateral infection is associated with some predisposing obstructive lesion in the renal pelvis or ureter; and Dr. Garrod has described a method of estimating the efficiency of urinary antiseptics designed to make it possible to determine which of the substances commonly recommended can in fact sterilise the urine, and the conditions under which they may achieve this object. A paper by Mr. R. C. Elmslie on fibrosis of bone, which is a fitting supplement to his earlier publications on other aspects of this disorder, and Dr. G. D. Kersley's essay on fragilitas ossium throw light on some of the more obscure problems of bone growth and metabolism. In addition to a statistical report from the cancer department of the hospital, and some shorter contributions on pathological subjects by Mr. C. K. Vartan (the nature of leucorrhœa), Dr. R. G. Anderson (the plasma phosphatase in jaundice), and Mr. F. d'Abreu (adamantinoma of the jaw), there is an appreciation of the late Mr. F. A. Rose who helped to establish and organise the throat department, and an interesting analysis of the careers of some hundreds of former students prepared by Mr. Ball as dean of the medical college. He has been able to show that the reason why so large a proportion of university students never take a degree is not because they fail to pass the final university examination but because they never enter for it.

THE LANCET

LONDON: SATURDAY, OCTOBER 19, 1935

ARTIFICIAL PNEUMOTHORAX AND AFTER

IT has been remarked that the treatment of pulmonary tuberculosis is the treatment of cavities. There are, it is true, certain types of fibrous-walled cavities which occur chiefly in the fibroid phthisis of later life which may persist for a decade or longer without causing any serious symptoms or giving rise to progressive disease. But apart from these examples of exceptional resistance there are few exceptions to the rule that a cavity which fails to close on rest, or which cannot be closed by artificial means, will lead to the death of the patient within a limited period. Nor is this surprising. A cavity is a natural incubator where the tubercle bacillus can breed under ideal conditions and avoid the perils of overcrowding by migration along open routes to fertile territories adjacent or across the carina. It is more surprising that the closure of a tuberculous cavity by the simple apposition of its walls is usually followed by healing and that after a cavity has been closed, for a period of a few months in some cases and a few years in others, re-expansion of the lung does not give rise to any breaking down of tissue recently friable. So long as a cavity remains patent the consumptive's life is in danger. The temperature may be normal, the pulse show no quickening, symptoms may be in abeyance, and the general condition excellent; but if the skiagram still shows evidence of excavation there is no basis for optimism. If tubercle bacilli persist in the sputum, even though X rays reveal no sign of excavation, ulceration must still be assumed and excavation though possibly of minimal extent must be inferred. An appreciation of these facts has led to the early employment of collapse therapy in the treatment of pulmonary cavitation, for the soft-walled cavities of incipient disease as a rule yield readily to artificial pneumothorax.

If pulmonary tuberculosis were always discovered in the stage of early infiltration the difficulties of its treatment would be few, though when the disease is subpleural and the lung membranes are involved simultaneously with the lung parenchymatous adhesions between visceral and parietal pleura may be present almost from the start. But early diagnosis is seldom possible. Incipient disease may give rise to no symptoms, the practitioner may fail to realise the significance of symptoms, or the patient actuated by fear may refuse to report sick. When disease has persisted for more than a few months complete collapse can seldom be secured by means of a pneumothorax. In some cases symphysis of the pleura prevents the entry of air into a pleural space no longer potential. In others a collapse incomplete but sufficiently effective to close cavities may be attained. In the remainder a measure of collapse is secured, but adhesions, which form most readily over excavated areas, anchor cavity-containing areas to the chest wall. Success may, however, still be attained, for adhesions may stretch under the influence of a carefully controlled pneumothorax. If the diseased and excavated lung is held taut by adherence at apex and base phrenic avulsion may relax tension and, with negligible risk or inconvenience to the patient, lead to a rapid closure of cavities though possibly at the expense of the partial sacrifice of some areas of healthy lung. If these methods fail the pneumothorax is sometimes maintained either from fear of depressing the patient by its discontinuance or because an easy optimism induces a vague hope that things will improve. Such an attitude is at once timid and ineffective. An artificial pneumothorax which is doing no good is probably doing harm. It should either be made effective or abandoned. There is no middle way. If it is abandoned the patient must either be left to die, or be urged to submit to a thoracoplasty—a crude and mutilating proceeding which often fails to achieve its object. In most cases the best means of overcoming the difficulty of the ineffective collapse is to render it effective by internal pneumolysis, a method which enables the patient to avoid the perils and pains of two or three major operations (or, to adopt current euphemism, a major operation performed in two or three stages), and which enables the physician to secure collapse exactly where the collapse is needed and thus to avoid the hazards of phrenic avulsion, the result of which though sometimes excellent can seldom be accurately predicted.

When performing an internal pneumolysis the operator's vision is limited by the very small field determined by his endoscope. He is working in a confined space, the mobility of his instruments is hampered by the costal arches, the adhesions to be severed are often in close proximity to vital structures, and bleeding can only be controlled indirectly by diathermic coagulation. The risks attending work of such a kind might well seem to outweigh the possible benefits of successful adhesion section. But those who are prepared to master the technique need not be deterred from the practice of internal pneumolysis by imagined dangers. Dr. F. G. CHANDLER, who has taken a leading part in demonstrating the method of Jacobaeus in this country, has proved—as MAURER, GRAVESEN, and others have proved elsewhere—that if a rigid technique be followed, if infinite patience be observed, and meticulous care taken, the risks of internal pneumolysis are small. No one who reads the story of individual cases or who studies the statistics supplied will dispute the author's opinion that the results of internal pneumolysis are highly gratifying. Those who have had the opportunity of either performing endoscopy or attending endoscopic operations at home or abroad will note with interest that Dr. CHANDLER is still inclined to favour a single puncture where this is feasible. In his hands

this method has yielded excellent results in the section even of very thick adhesions. The more usual practice involving two punctures will probably continue to be the method of choice for most workers.[1] The technique adopted is of minor importance. It is, however, of paramount importance that whatever method be used the same care should be exercised to avoid the dangers inherent in any closed method of operating within the thoracic cavity. A recent warning by Mr. TUDOR EDWARDS[2] is opportune, and the beginner should realise that any damage to the lung will lead to "complications much more serious than the condition for which the operation is undertaken." Until practice has brought experience and confidence he must be prepared to restrict his work to the simpler types of adhesion. But those who by study and discipline have qualified themselves for work of this kind will not regret either the time or the labour spent in acquiring the skill necessary for the successful treatment of disease once inevitably fatal and now frequently curable. There are cases where, as Dr. MAURER[3] insists, the section of adhesions may mean for the patient the difference between life and death. Operative endoscopy may not greatly affect public health statistics, but it is of vital importance to individual sufferers.

BOVINE VACCINATION AGAINST TUBERCULOSIS

AT the conclusion of the test of Spahlinger bovine vaccine in Northern Ireland, related in these columns a fortnight ago (p. 780), an official of the Ministry of Agriculture in Belfast suggested that the satisfactory nature of the results obtained raised the question of making compulsory use of the vaccine as a means of eradicating tuberculosis from the herds of Northern Ireland. This prospect has indeed been raised, but before it can be realised there are a number of doubts and difficulties about the use of any bovine vaccine which will have to be cleared up. A comparison of the results obtained in this and other investigations shows that the problem of immunisation has been approached in several different ways. Thus, since MCFADYEAN'S first attempts to induce immunity with old tuberculin, many other substances have been used—e.g., the split products of bacillary substance, bacilli killed by various agents, and living bacilli whether of human, avian, ichthic, or modified bovine strains. The methods of vaccination have also varied within wide limits. Some investigators have been satisfied with one large vaccinating dose, others have tried a yearly revaccination in the hope of prolonging the period of immunity, whilst almost every possible route has been used for the introduction of the vaccine. The resistance test dose of tubercle bacilli given later to demonstrate the immunity produced has varied equally widely. Some experimenters have used emulsions of tuberculous tissues in which the number of bacilli cannot have been known with any degree of certainty; others have used cultures of bacilli of known virulence and of carefully estimated dosage; others again have relied on exposure to natural infection on the farm. Even that is not the end of the almost infinite variety in the conditions of trial, for animals have been maintained during the experiments in rigid isolation, or under ordinary farm conditions, or on a free range in the open air. Lastly, not a few of the investigations have been made with numbers of animals too small to be of statistical significance. The reason for this is apparent: the cost of field experiments is of a very different order from that of laboratory experiments with guinea-pigs and rabbits. Among the recent investigations made with significant numbers may be cited the careful researches of WATSON (72 animals) carried out under the ægis of the Canadian Government, in which the immunity conferred varied between two months and four and a half years; and those of BUXTON and GRIFFITH (51 animals) with grants from the Cambridge Institute of Animal Pathology and the Medical Research Council, in which immunity extended from eight months to three years—the latter series being entirely immunised with B C G vaccine, the former with B C G plus a virulent strain. An extensive field experiment was also recorded two years ago by DREYER, VOLLUM, and AMMITZBÖLL, with diaplyte vaccine, in which 281 animals on a heavily infected farm were vaccinated without interference with farm conditions during a period of nine years. In this case 90 per cent. of the cattle on the farm were tuberculous at the beginning of the experiment, and although the immunised animals were allowed to mix freely with the infected stock only 2 of the 281 animals developed clinical tuberculosis.

New factors have been introduced in the Northern Ireland experiment. Various types of vaccine and bacterial product were used, the most important being the "new simplified dead vaccine" of Mr. SPAHLINGER in which the organisms were not killed by any of the ordinary laboratory methods but by exposure in a cool dark place until all the bacilli in the emulsion had died a natural death by the efflux of time—a year or even longer. A high resistance test dose of bacilli was selected—viz., 2·5 mg. of growth administered intravenously. Seven different strains of bovine bacilli were used in the preparation of this test dose, of which three were obtained from milk by direct cultivation, and apparently without previous guinea-pig control to ensure their virulence. The other four strains had been isolated by guinea-pig inoculation. Preliminary tests were made of the combined virulence of the assembled seven strains, but no previous information was available regarding individual virulence prior to the test. The calves used for the experiment had been reared out of doors and were allowed to continue in the open to the end of the experiment. Whilst this experiment impresses by the long period of immunity obtained and its high degree, the number of animals were small—very small indeed to base a plea

[1] Vide Scott Pinchin, A. J., and Morlock, H. V.: THE LANCET, 1931, i., 1300. [2] Ibid., Oct. 12th, 1935, p. 853.

[3] Irish Jour. Med. Sci., September, 1935, p. 537.

for compulsory vaccination upon. It must be regretted by all friendly observers that the calves used for the minor experiments with old vaccine and bacterial products were not all devoted to the major issue of testing the new simplified dead vaccine prepared in 1929, for which purpose only 11 calves out of 32 available (including controls) were used. We have no doubt that before resort to any compulsory scheme of bovine vaccination based on this most suggestive experiment it is essential that standard conditions should be laid down for estimating the value of a bovine vaccine. No doubt the inherent difficulties of the task have been largely responsible for the variation in technique, and a field experiment on an adequate scale is beyond the means of any voluntary research institution. The preparation and standardisation of vaccines on a large scale needs careful control, especially when dealing with those made from modified living organisms, such as B C G, or from bacteria which have been allowed to die by the efflux of time, such as the Spahlinger vaccine—to mention two which have become important of recent years. Indeed, as far as we are aware, no one has yet prepared the Spahlinger vaccine except the originator himself. To these questions must be added the cognate problems of suitable environmental conditions of the animals under test, the duration of the immunity attainable and the most satisfactory way of measuring it. Above all, a team of workers is needed who will adequately represent the different branches of bacteriology, immunology, and veterinary science. The experiment in North Ireland justifies a survey of this kind.

HÆMOSTASIS IN HÆMOPHILIA

"The sight . . . of a patient slowly becoming exsanguine from a trivial injury, capable, perhaps, of being securely enveloped in bandages, must leave a lasting impression on the observer."

THE studied moderation of this sentence from BULLOCH and FILDES'S monograph on "Hæmophilia" hardly conveys the sensation of therapeutic bankruptcy which assails the clinician faced with a case of hæmophilic hæmorrhage. This very helplessness has, in the past, encouraged the use of such heroic measures as hot irons, tar, and strong acids, which were not only valueless but prejudicial, in themselves, to the patient's existence. About a year ago Dr. R. G. MACFARLANE and Dr. BURGESS BARNETT published in THE LANCET[1] their discovery of a new hæmostatic of much promise in the treatment of external hæmophilic hæmorrhage. This agent, it will be remembered, was a solution of the venom of Russell's viper,[2] an Indian snake. MACFARLANE has now reviewed the control of accessible hæmorrhage in hæmophiliacs with special reference to the use of this venom.[3]

The hæmorrhagic tendency in hæmophilia seems to be due solely to a disturbance in the coagulative mechanism of the blood. The fundamental fault upon which the prolonged coagulation time depends is not yet clear, but the hypothesis which is perhaps most favoured at the present time is that all the phases of coagulation are slowed owing to an abnormal stability of the plasma colloids. Our ignorance of the pathogeny of hæmophilia makes it impossible to attempt to correct the underlying abnormality in a rational manner. The only measure which will diminish coagulation time over a considerable period is transfusion of blood. In the absence of effective general measures, the local treatment of hæmorrhage assumes great importance, and, unsatisfactory though it may be, the only method of dealing with a hæmophilic patient at the present time is the scrupulous avoidance of traumata and the efficient and prompt treatment of hæmorrhages, when they are accessible, by local means and by blood transfusion. It is particularly this last aspect which is discussed by MACFARLANE in his latest paper. Internal hæmorrhage still remains almost certainly fatal. From the nine cases which he reviews he is able to draw certain conclusions and to suggest a tentative system of treatment. The first two were treated before Russell's viper venom was available, but in the remaining seven it was employed successfully as a hæmostatic, supplemented in two cases by blood transfusion. The venom has the power, in vitro, of causing hæmophilic blood to form a tough elastic clot. One experiment may be quoted to show its extraordinary potency: a specimen of hæmophilic blood which took 35 minutes to clot spontaneously, clotted in 17 seconds on the addition of one-tenth its volume of 1 : 10,000 Russell's viper venom solution. Fortunately the coagulant power of the venom does not diminish in direct proportion to the dilution and a coagulant effect could still be demonstrated after a dilution of $1 : 10^{18}$; thus in high dilution an extremely potent coagulant action is retained while other possible toxic effects of venom are absent. The sterility of solutions was ensured by passage through a Berkefeld filter. This interesting series of cases represent the first clinical trials of a remarkable coagulant. From their consideration MACFARLANE is led to condemn certain therapeutic measures in common use. Pressure upon injured tissues should, he holds, never be maintained for more than a short time. Its value consists merely in decreasing the blood flow a sufficient time for the hæmostatic to produce a firm clot. Pressure applied for longer is almost certain to lead to necrosis of already devitalised tissue. This is well demonstrated in his Case 9, where a tightly fitting dental plate led to necrosis and subsequent infection of a tooth socket; the condition did not start to improve until all local applications were discontinued. Experience with other hæmostatics has shown that Russell's viper venom is the most effective one available, and that if it fails others are not likely to succeed. Meddling with the wound is strongly deprecated and irritants should never

[1] THE LANCET, 1934, ii., 985.
[2] We understand that Russell's viper venom is not yet on the market, but can be obtained for use in dental or surgical clinics, or by a doctor or dentist actually requiring it for the treatment of bleeding in a hæmophiliac, on application to the director of the Wellcome Physiological Research Laboratories, Beckenham, Kent.
[3] St. Bartholomew's Hospital Reports, 1935, lxviii., 229.

be used. Adrenaline may have a temporary value in decreasing the local blood-supply, but if applied repeatedly has the same dangers as prolonged pressure. The cautery "is worse than useless in cases of hæmophilia and should never be employed." Sutures should not be used unless it is certain that they will not cut out; suturing the skin edges over wounds in which the bleeding is not completely controlled is regarded as certain to lead to extensive hæmatoma formation. An illustration of this danger is provided by Case 8 in this series, where a cut on the dorsum of the right hand was sutured on two occasions; the day following the second suture the hand was so swollen with effused blood as to be "almost spherical." Hæmorrhage was eventually controlled by removal of all sutures, the wound being lightly packed with gauze soaked in Russell's viper venom.

The advice given for the treatment of accessible hæmorrhage in cases of hæmophilia is as follows:—

"The wound should be very carefully and gently cleaned out, and useless clots removed. A dressing soaked in Russell's viper venom should be applied, or lightly plugged into the cavity. Some means should be adopted to keep the dressing firmly in place without movement. In the mouth a well-fitting plate should be employed, a loose plate is useless as its movements dislodge the clots that form. This form of treatment can usually be relied upon to arrest or at any rate greatly diminish the bleeding. If it still continues the application may be repeated, using a hot dressing at 50° C. If this fails, the best that can be done in the way of light packing with gauze soaked in adrenaline and snake venom should be carried out. Further hæmorrhage should be disregarded and no drastic steps taken to arrest it. The wound should be left alone and the patient allowed to bleed. He should be watched carefully and at the first indication a full transfusion of normal blood given, repeated, if necessary, until the bleeding stops. This will occur when healing takes place, and repeated interference with the wound will only delay matters. It cannot be too strongly emphasised that any other measures than those suggested are almost certain to be useless and to delay healing. The hæmophilic patient usually loses his blood slowly, and even when bleeding is untreated, it will probably be found that a transfusion is only necessary every other day. Naturally, the patient will be alarmed at the continued hæmorrhage, and his reassurance by the explanation of the position is a very necessary part of the treatment."

The case reports in Dr. MACFARLANE'S paper bear testimony to the success which accompanies this simple and rational therapeutic scheme, and there seems to be no doubt that in Russell's viper venom we have the most, if not the only, effective local agent for the arrest of hæmorrhage in hæmophilic patients.

ANNOTATIONS

A DANGEROUS DRUG

THE increasing importance and danger of agranulocytosis is shown by the fact that it is held responsible for 1500 deaths in the United States alone in the three-year period ended in 1934.[1] Since the disease was first described many efforts have been made to determine its cause. There is at present no satisfactory evidence to support a dietary deficiency as an ætiological factor though this possibility has been investigated. Since the neutropenia in many cases has been shown to precede the onset of septic conditions, it is presumably the cause and not the result of bacterial invasion of the tissues. The frequent occurrence of attacks at the menstrual period has suggested a possible but entirely hypothetical hormonic dysfunction. The evidence incriminating a certain group of drugs is, however, extremely strong. That such drugs may not be involved in all cases is clear from the work of Jackson,[2] but as Kracke and Parker point out,[1] they have certainly played an essential part in some. These workers conclude that of the drugs incriminated by various observers amidopyrin (Pyramidon), dinitrophenol, and possibly other closely related preparations must certainly be considered ætiological agents. They have collected 172 cases from all over the world in which the illness has definitely followed the use of these substances. In some instances successive attacks have followed further administration of the same drug, and a somewhat similar picture has been induced in animals by similar means. The disease is certainly most prevalent in that class of people—notably doctors, nurses, and their families—who are the largest users of these drugs, and its first appearance seems to be closely related to the time at which the amidopyrin-containing preparations came into use. Amidopyrin is a constituent not only of drugs usually ordered by the physician, but also of medicines or tonics advertised to the man in the street. In this country it is probably prescribed most often in the form of Allonal, which is increasingly used both as hypnotic and analgesic. It also forms part of the preparations Amytal compound, Cibalgin, Compral, Dismenol, and Prokliman. By those who admit the possibility of danger the argument is put forward that the amounts taken in these compounds are small and the risk in practice negligible. But the evidence now marshalled by Kracke and Parker makes it clear, in our opinion, that amidopyrin in any form should no longer be used when other equally effective drugs are available and that it should be ordered only by a non-repeatable prescription. Too often patients are told to take a tablet when they feel like it, for the relief of pain or insomnia; whereas, for the present, it seems best to regard amidopyrin, and preparations containing it, as dangerous drugs.

[1] Kracke, R. R., and Parker, F.: Jour. Amer. Med. Assoc., Sept. 21st, 1935, p. 960.
[2] Jackson, H., Jr.: Amer. Jour. Med. Sci., 1934, clxxxviii., 482.

AVIATION MEDICINE

THE careful medical selection of flying personnel, both for the Royal Air Force and professional civil flying, is one of particular importance to this country, especially at the present time when the rapid expansion of flying has resulted in a greatly increased demand for pilots in both the Service and civil branches. The necessity for a thorough and careful medical examination is now generally accepted, but in the early days of the late war this was by no means so, and the figures, quoted in the September number of the *Military Surgeon*, for British casualties among fliers in the first year of the war are eloquent proof of the need for such examination. The quoted figures show that, out of every 100 fliers killed, 2

met their death at the hands of the enemy, 8 from some defect of their machines, and 90 through an individual deficiency such as physical unfitness, recklessness, or carelessness; 60 of them were attributed to physical defect. As a result of a special service being inaugurated for the "care of the flier," these fatalities due to physical defects were reduced from 60 per cent. to 20 per cent. at the end of the second year, and at the close of the third year to 12 per cent. In the United States the first standards laid down in 1914 were so high that no candidate was found capable of passing the tests. Brigadier-General W. H. Wilmer gives an interesting account of the gradual development of the present standards and of the various methods of testing the probable capabilities of the flier for high altitude flying. The routine use of oxygen at altitude has lessened the importance of tests in the decompression chamber as a regular procedure, and in this country they are no longer employed as part of the regular examination of aviation candidates. The decompression chamber is still used, however, for special research such as that entailed in the production of new oxygen masks and work of this nature.

Although the different nations employ varying methods in the medical selection of their flying personnel, the methods current in this country appear to be at least as thorough as those elsewhere; and the medical branch of the Royal Air Force, which examines both Service and civil pilots at the Central Medical Establishment in London, is fully alive to the importance of developing this relatively new but none the less important branch of medicine.

PULMONARY OSTEO-ARTHROPATHY

THE occasional association of bony changes with chronic pulmonary disease has long been familiar, but the causative link has been hard to trace. Much experiment in the department of surgery at the University of Chicago [1] has once more failed to reveal it, but the study of two well-marked cases of the disease has led to conclusions worth notice. It is recognised that any advanced pulmonary change may give rise to osteo-arthropathy if long enough continued, and chronic valvular disease may also cause it, when associated with passive venous congestion. The three commonest causes according to the Comperes and Adams are bronchiectasis, empyema, and tuberculosis with cavity formation; in their own two patients the primary conditions were blastomycosis of the chest wall (with secondary infection and empyema) and carcinoma of the lung (with involvement of the bronchi and large blood-vessels but no thoracic suppuration). Cases like the second of these are evidence against the idea that the changes in the bones are due to absorption of bacterial toxins, and so is the finding that periosteal new-bone formation sometimes occurs in people free from intrathoracic disease, but living at high altitudes. The only factors common to the two cases studied at Chicago were dyspnœa, cyanosis, and a change in the hydrogen-ion concentration of the blood to the alkaline side. These signs, it is thought, like the changes at high altitudes, may all be explained as due to a decrease in the oxygen content of the serum, possibly with an increase in metabolic waste products. Besides the most constant and striking alterations, which are seen in the shafts of the long bones, there are other tissue changes, giving rise to the familiar clubbing of the fingers, and to painful joint conditions, characterised by synovial swelling, and later by erosion of cartilage from the articular surfaces. In the bones the periosteum is raised by successive layers of cancellous bone, seen at first in radiograms as laminæ. The bone directly underlying the periosteum is denser and forms a sort of secondary cortex, and even in the later stages, when the distinct lamination has disappeared, the new bone does not fuse with the underlying shaft, but surrounds it.

The investigators' failure to reproduce the typical changes in dogs may, they think, be due to the unusual ability of these animals to compensate for loss of aerating tissue.

[1] Compere, E. L., Adams, W. E., and Compere, C. L.: Surg., Gyn., and Obst., September, 1935, p. 312.

HODGKIN'S DISEASE

ALTHOUGH lymphadenoma, or as it is generally termed abroad lymphogranuloma, is known to have a wide distribution both in Europe and America, we have still much to learn concerning its incidence in the world generally, and especially on the various races of man. The clinical features of the disease and its characteristic morbid anatomy and histology are now thoroughly established. No disease, however, can be considered to be defined with satisfaction until its ætiology has been solved, and attempts to isolate a causal agent from cases of lymphadenoma have been handicapped by the circumstance that the disease does not appear to exist naturally in the animal kingdom, and in spite of many endeavours all efforts to reproduce it in animals experimentally have failed. Nevertheless, a certain amount of progress in this direction seems to have been made. The latest organised attempt to solve the problem of lymphadenoma, the Rose Research, was carried out by a combined effort at St. Bartholomew's Hospital between 1928 and 1932. Here the possible agency of various micro-organisms known to be capable of producing granuloma, such as tubercle bacilli, spirochætes, and pathogenic fungi, was excluded. The only positive evidence found was the presence in lymphadenoma glands (in large numbers and apparently in pure culture) of minute "elementary bodies" similar in size, appearance, and staining properties to those found in vaccinia and certain other known virus diseases. Thanks to the work of E. Paschen in Germany, of J. Craigie in Canada, and especially of J. C. G. Ledingham in this country, it is now generally admitted that these elementary bodies are the actual causative micro-organisms in vaccinia. The presence in lymphadenoma glands of similar minute bodies, called by A. C. Coles "virus bodies," is thus highly suggestive.

During the course of the Rose Research it was also noticed that a suspension of the affected lymphatic glands of patients suffering from lymphadenoma, when injected cerebrally into rabbits, generates, after an incubation period of one or more days, a peculiar encephalitic syndrome characterised by loss of weight, rigidity, incoördination, and ataxia. As similarly prepared suspensions of lymphatic glands from patients suffering from conditions other than lymphadenoma had no such action, the intracerebral injection of the rabbit formed a biological test that promised to afford valuable confirmatory evidence in glands removed for biopsy in patients with suspected lymphadenoma and especially in cases where the histological appearance is atypical. During the three years that have elapsed since the Rose research report was published [1] confirmatory evidence of the value of this biological test in question has been

[1] The Rose Research Report, London, 1932.

published from Edinburgh,[2] Utrecht,[3] Belfast,[4] and Treviso.[5] We learn moreover that up to March, 1934, at St. Bartholomew's Hospital glands from 102 patients in all had been submitted to the biological test on the rabbit's brain: 35 of them were from cases of lymphadenoma and 30 of these gave a positive result. The remaining 67 glands, from patients suffering from conditions definitely not lymphadenomatous, all gave negative results.

The exact nature of the agent or agents responsible for this syndrome in the rabbit has not yet been established. U. Friedemann[6] has drawn attention to the fact that suspensions of normal human bone-marrow and occasionally of spleen and leucocytes of human origin can provoke similar symptoms in the rabbit by cerebral injection. This was confirmed a few months ago by Ian Mackenzie and C. E. van Rooyen[7] who brought forward evidence to show that the agent concerned differs from Jochmann's proteolytic enzyme to which Friedemann had called attention in this connexion. The actual cause of this encephalitic syndrome is, therefore, at present unknown. Bortolozzi[5] found in the rabbits succumbing to an injection of lymphadenoma gland substance histological appearances that he interprets as pointing to a generalised infection with some unknown agent, possibly a virus.

In view of all this work the paper published by E. C. Smith on p. 874 of our present issue is of considerable interest. He furnishes evidence that lymphadenoma exists among the indigenous population of Nigeria, and that glands from these cases not only show the characteristic histological changes of lymphadenoma, but also give a positive result in the biological test on the rabbit. He found that the cerebral injection of monkeys failed, as had also been found by the Rose researchers. Incidentally, Dr. Smith's further experiments with cultures of a diphtheroid bacillus isolated from lymphadenoma gland also provide further evidence of the comparative innocence of this organism which at one time was considered by some to have ætiological significance.

PERSPECTIVE IN MEDICINE

"NATURE meant him to be a healer, for he brightens up a sick room." This quotation from Oliver Wendell Holmes was used effectively by Dr. G. F. Still in his inaugural address to the students of King's College Hospital on Oct. 10th. His practical advice to supplement a "serene and cheerful countenance" with warm hands is likely to be appreciated by the future patients even of those among his audience who may be ungrateful enough to forget, in the course of time, the source of their good habits. Dr. Still's lecture was mainly concerned with the value of a proper perspective in diagnosis, prognosis, and treatment. The Utopian text-book, he said, would describe symptoms in such exact perspective that each disease could be recognised at once by the particular prominence of one symptom, the intermediate position of another, and so forth. But in practice observation and experience were of more value than text-book knowledge, especially if a fashionable idea is not allowed to obsess the mind of the observer. For example, many cases of vomiting are due to causes other than acidosis; a daily slight rise of temperature may be a sequel to a common cold rather than a sign of tubercle; and wasting may be due to some failure of digestion dependent on faulty diet or defective teeth. In prognosis especially the right perspective is important; and the story of the rapid and complete recovery of a child showing what seemed unmistakable symptoms of tuberculous meningitis gave point to the welcome assurance that increasing years bring to a physician a more rather than a less hopeful outlook. Finally, in treatment proper perspective would ensure the adaptation of curative measures to the needs of the individual patient rather than the attempt to adapt the patient to the desired treatment. The account of the little girl in the last distressed stage of heart disease, exhausting her remaining strength by struggles with the resident medical officer who insisted on giving her brandy, provided a vivid picture of the evils of routine therapy. Other examples offered were the indiscriminate prescriptions for normal children of roughage in diet, glucose, and preparations containing vitamins. In dietetics above all, said Dr. Still, theory had to be constantly checked by experience and observation.

BRITISH AMBULANCE FOR ABYSSINIA

A FEW weeks ago Mr. J. M. Melly described in our columns (Sept. 14th, p. 632) the organisation of an ambulance service for Ethiopia in the event of war with Italy. This British Ambulance Service in Ethiopia has now been officially recognised by both the British and Ethiopian Governments under Articles 10 and 11 of the Geneva Convention. The advance officers, sent some weeks ago to Addis Ababa, Berbera (in British Somaliland), and Nairobi, have cabled that they have carried out their instructions successfully. Dr. T. A. Lambie, in Addis Ababa, has obtained the necessary permits for the personnel and transport of the unit to enter Ethiopia, either by the railway from Jibuti, if it is still functioning, or through British Somaliland; or, should the advancing Italians have rendered that route impracticable, from Nairobi, crossing the frontier at Moyale. He has been assured of the full coöperation of the Ethiopian Government in providing as much lorry and mule transport as possible, and the newly formed Ethiopian Women's Work Association has offered its services for the renewal of supplies of bandages and dressings. Captain J. Purves has reconnoitred the route of entry through British Somaliland to Harar and selected a suitable site for the field hospital in its neighbourhood. He now awaits the arrival of the unit at Berbera. Col. J. M. Llewellyn, in Nairobi, has reported on the alternative route of entry via Moyale on the Kenya frontier should the advancing Italians cut the Berbera-Jijiga-Harar line before the arrival of the unit. With the coöperation of H.E. the Governor and the medical missions in Kenya and Uganda, he is recruiting trained native medical personnel, and reports that 40 such native dressers and 3 Indian sub-assistant surgeons are available.

Meanwhile arrangements in London have proceeded as far as possible until the necessary funds are forthcoming. Applications from a number of medical men have been received but no selection of the seven medical officers required has yet been made, and applications are still being invited. An adequate salary, according to qualifications, is offered; young unmarried men, with some surgical experience, will

[2] van Rooyen, C. E.: Brit. Med. Jour., 1933, i., 644; Ibid., 1933, ii., 562; Ibid., 1934, i., 519. Ogilvie, R. F., and van Rooyen, C. E.: THE LANCET, 1933, ii., 641.
[3] van der Hoeden, J., and Hulst, L. A.: Nederl. Tijdschrift voor Geneeskunde, 1934, lxxviii., 4305.
[4] Davis, W. B.: Brit. Med. Jour., 1935, i., 324.
[5] Bortolozzi, M.: Bull. della Societa Med.-Chirurgica di Treviso, 1934, i., 299.
[6] Friedemann, U., and Elkeles, A.: Brit. Med. Jour., 1933, ii., 1110. Friedemann, U.: Ibid., 1934, i., 517.
[7] Mackenzie, I., and van Rooyen, C. E.: Brit. Med. Jour., 1935, i., 406.

be given preference. The unit when complete will consist of one field hospital and one casualty clearing station, with 7 medical officers, 2 administrative officers, and the necessary transport officers, trained dressers, transport, and equipment. The money required to send the unit out and maintain it for the first three months in the field is £35,000. The unit will be able to start within two weeks of this sum being forthcoming. An urgent message from the Emperor of Ethiopia just received at the London headquarters of the unit states that the Northern Army is without medical aid and urges that an ambulance unit should be sent to that front without delay. The address of the British Ambulance Service in Ethiopia is 33, Alfred-place, London, S.W.7.

At the same time the Save the Children Fund (20, Gordon-square, W.C.1) is organising relief for Abyssinian refugees to the neighbouring territories of British Somaliland and Kenya. In view of the primitive conditions of the country it is felt that aid must be given to adults if children are to be efficiently helped.

THE PRICKLY PSYCHOLOGIST

THE various schools of psychology are apt to lay emphasis on their differences rather than their concord. In his inaugural address last week as chairman of the Medical Society of Individual Psychology, Dr. C. M. Bevan-Brown spoke regretfully of this tendency towards competition and antipathy and of its effect on the application of psychological medicine. Practitioners often say "when you agree among yourselves we will attend to you, but not before"; and Dr. Bevan-Brown thinks they are largely justified. But he does not agree with the statement, so frequently made, that the schools are irreconcilable and coördination hopeless; a common basis is discoverable if truly sought. It is unjustifiable to assume that any one school is complete or exhaustive and that correlation cannot therefore be expected; indeed, each school contains contributions to the whole problem not possessed by the others, and therefore complementation should be considered as well as correlation. In exhorting his society to give due weight to all views and to abhor sectarianism and bigotry, Dr. Bevan-Brown pointed out that so far as therapeutics is concerned it is fallacious to argue in terms of the various psychopathological theories only. The personality of the physician probably plays a much more important part than his particular theories, and the cures he obtains are often independent of his opinions.

SPECTRA OF VITAMINS AND HORMONES

THE application of spectrophotometric technique to the identification and measurement of organic substances which occur in nature only in very small quantities has helped enormously to advance our more exact knowledge of the vitamins. Association of a definite absorption band with a given substance makes it possible rapidly to follow up the most active fraction in a process of concentration and even to make quantitative estimations of the amount of the substance present. Quantitative estimation of vitamin A by measurement of its absorption in the ultra-violet at 328 mμ has become a matter of practical politics although there are many limitations and pitfalls in the application of the method. All this information is set out conveniently by Mr. R. A. Morton, D.Sc., in a little book recently published.[1] The further application of the method to the spectroscopic estimation of that part of the vitamin-A activity of a material which is due to the presence of the provitamin, carotene, is also described, the absorption in the visible part of the spectrum being here used. A valuable table gives the different absorption maxima of various carotenes and xanthophylls and derivatives of them, together with the comparative biological efficiency, if any, where known. Vitamins B_1, B_2, C, D, and E are also dealt with, although the existing information about them is less complete. The section on the hormones is less informative, since very little work has yet been done with them in this field, though the desirability of applying spectroscopic technique to their estimation is self-evident. The possibilities with respect to the sex hormones, for instance, are very great, but the technical difficulties are substantial, since these hormones are for the most part obtained from very large quantities of urine in which their presence in small amount tends to be masked by that of many other substances. Those proposing to pursue the study either of hormones or of vitamins from this angle will find here invaluable material collected from the scattered literature.

[1] The Application of Absorption Spectra to the Study of Vitamins and Hormones. By R. A. Morton, D.Sc., Ph.D., F.I.C., Department of Chemistry, the University of Liverpool. London: Adam Hilger Ltd. 1935. Pp. 70. 10s.

HOSPITAL SERVICES UNDER THE LOCAL GOVERNMENT ACT, 1929

THE Local Government Act of 1929 profoundly influenced hospital development by two instruments. The power of "appropriating" former poor-law hospitals was conferred on public health authorities; the power of providing hospitals for the sick, conferred on municipal authorities by the Public Health Act of 1875, was extended to county councils, including the L.C.C. More is involved in appropriation than mere transference from the Poor Law as is shown in Dr. MacNalty's first report as C.M.O. of the Ministry of Health, of which a brief review is given on p. 913. An appropriated hospital becomes an integral part of the public health service under the supervision of the medical officer of health and, while continuing to provide for the destitute sick, may be developed for wider requirements and may be coördinated with and assist the development of the specialist services of the authority as maternity and child welfare, tuberculosis, and venereal disease. Such development leads to an improved standard of construction and equipment and medical staffing. Coöperation with voluntary hospitals is also facilitated. Further, the enlargement of their sphere from that of individual boards of guardians to a wider authority may bring many hospitals into one coördinated scheme, allowing better distribution and classification of patients and economy of services, as is especially seen in the taking over by the L.C.C. of the functions of 25 boards of guardians and of the Metropolitan Asylums Board. It will thus be seen that the possibilities of organisation and development under the new system are very considerable. Thus in London by new construction and reconditioning 1823 additional beds have been provided since April, 1930, and further improvements are shown by "the provision of 11 new operating theatres, six new X ray departments, five new massage departments and three new dispensaries, in addition to the improvement or enlargement of existing provision under these heads at other hospitals." Better classification may also lead to bettering the lot of the chronic sick whose cause is so persuasively championed in Dr. Brander's presidential address to the Hunterian Society reported on p. 887.

Less detailed information is given in the reports

of the Ministry of Health and of its chief medical officer regarding development outside London, but sufficient to show that it has also been considerable. Thus appropriation for general hospital purposes has been effected by 30 borough and two county councils, representing a total on April 1st, 1935, of 24,140 beds. In addition, there is appropriation for special purposes, such as children's hospitals, fever hospitals, tuberculosis hospitals, epileptic homes, and mental deficiency institutions. Schemes for alterations and additions to existing accommodation are being carried out or are in preparation by a large number of authorities. The two official reports may be supplemented by reference to some annual reports of medical officers for 1934. Thus Liverpool shows an extensive programme of reconstruction, an increase in admissions over five years of 25 per cent., and a marked increase in the use of special facilities as X rays and pathological examinations. In Manchester, where the municipal hospitals provide three and a half times as much accommodation for the sick as do the voluntary hospitals, it has been found necessary to appoint an assistant medical officer of health in charge of the administration of hospital and municipal services; during recent months there has been reconstruction of the consultant services and the setting up of a Joint Hospital Board for the city. The report for Southampton indicates extension of the medical staff as well as improved equipment and the provision of a maternity unit. At Portsmouth municipal hospital there has been an increase in admissions of 20 per cent. in one year. Essex proposes to erect two hospitals of 500 beds, a hospital of 800 beds for chronic and infirm cases, and two convalescent hospitals of 100 beds. Surrey has approved proposals for the erection of a hospital of some 850 beds. Durham also proposes the erection of a central hospital. These are only illustrations of what is taking place throughout the country. It is gratifying evidence how effective has been the stimulus to hospital development of the Local Government Act.

SIR JOHN M'LENNAN, F.R.S.

THE sudden death last week of John Cunningham M'Lennan, D.Sc., F.R.S., whose name appeared in the last Birthday Honours list, removes a prominent figure in the scientific world, for if not a pioneer, M'Lennan did work characteristic of a man possessed of keen scientific acumen and great executive power. A fellow student with Ernest Rutherford under J. J. Thomson in the Cambridge Cavendish laboratory, M'Lennan spent most of his life in Canada, where he had been born and educated, and turned a small and badly equipped laboratory into one of the finest physics departments in the world, which remains a monument to his driving power and virility as the M'Lennan Institute at Toronto. In these years his most notable public achievement was the production of helium on a scale big enough to make it available for aircraft. But his main scientific work was in radio-activity, and while he did not discover the extraordinary electrical conductivity of metals at low temperatures, he brought it into the field of common knowledge. It should be recalled that nearly 30 years ago M'Lennan showed that what is known as spontaneous ionisation is largely due to the radio-activity of the earth's surface. In the field of optics it was M'Lennan that discovered the origin of the green line in the spectrum of the aurora, which had long puzzled physicists. In 1932, on retiring from the chair of physics at Toronto, M'Lennan found in this country an outlet for his energy in the treatment of cancer by means of radium. It was he who induced the Union Minière of Brussels to loan large quantities of their stock radium for research, and he was instrumental in organising a clinical unit at the Radium Institute with representatives of the Medical Research Council and other departments. This radium beam therapy research afforded scope for his energies. He possessed the judgment to select the best policies to follow, the best methods to employ, and to sift the good ideas from the bad. He was himself still fertile in new ideas, and the design of a new radium unit with pneumatic transference of the radium embodies many of them. The high density tungsten alloy used in its construction was produced at M'Lennan's instruction. One of his aims was for a joint experiment at the Radium Institute and the Cancer Hospital with three 5-gramme units. This extension of work will take place in the next few weeks, and it is sad that M'Lennan did not live to see the fulfilment of the plans for which he had worked.

"ENSOL"

THE preliminary note[1] in which Dr. H. C. Connell, of Kingston, Ontario, describes his treatment of cancer does not justify the optimistic reports telegraphed to this country. The remedy he uses is a solution containing enzymes believed to be specific for malignant cells. It is prepared by placing human cancer tissue in tubes containing 0·85 per cent. saline solution and inoculating these tubes with a culture of *Bacillus histolyticus*. After 4–6 days' incubation the tissue has been digested by the enzymes secreted by the bacillus, and it is supposed that these enzymes will now prove specifically destructive to malignant cells. The contents of the tubes are filtered through a Berkefeld candle, and the resulting sterile fluid, known as Ensol, is injected intravenously or into muscles. Unfortunately Dr. Connell presents no evidence that the solution contains substances specifically destructive to cancer cells in vitro, and though experiments, in vivo, on mice with transplated tumours are said to bear out his expectations, the director of the Imperial Cancer Research Fund in our correspondence columns this week reports that similar tests in this country have proved consistently negative. The clinical evidence is based on 30 cases, all of them inoperable, and only the first two patients showed striking improvement. In both these cases pain disappeared, the general condition improved, and the tumour masses regressed; but the period of observation since the beginning of treatment was at the time of writing only four months. In the other 28 cases there is little evidence of more than an easing or controlling of pain with a gain in weight following the treatment.

Dr. Connell has elsewhere committed himself to the statement of his conviction that this work when completed will solve the cancer problem, and we do not think this hopefulness justified by the published data. It appears that the account he gives of the preparation of ensol solution is not detailed enough to enable other competent bacteriologists to supply clinicians with an active product; for he adds that "steps have been taken to prevent the exploitation of the public and the profession by unauthorised interests" and that "no supply of this solution will be made available until its value has been definitely proved." One may well ask why, under these circumstances, the paper was published.

[1] Canad. Med. Assoc. Jour., October, 1935, p. 364.

PROGNOSIS

A Series of Signed Articles contributed by invitation

LXXIII.—PROGNOSIS OF NON-MALIGNANT DISEASES OF THE BREAST

Acute Affections

ACUTE affections of the breast tissue during lactation may, if vigorous treatment is adopted early, subside without suppuration. Should suppuration occur, convalescence is shortened and the total demand upon the patient's strength lessened if surgical treatment is delayed until a definite abscess can be localised. Even if the patient be gravely ill and more than one operation is required, unless there are constitutional complications present, such as renal disease or active phthisis, recovery after a shorter or longer convalescence is the rule.

Acute mastitis also occurs in non-lactating breasts. In these cases one segment only of the breast is, as a rule, affected, and suppuration does not occur. Complete resolution follows simple local treatment in a week or two. Relapses are not uncommon.

There is no evidence that carcinoma occurs with any special frequency in breasts that have previously been the site of acute inflammatory disease.

Chronic Affections

NEOPLASMS

1. A *fibro-adenoma*, the commonest simple tumour of the breast, does not become malignant. Cure of this condition follows local removal. The appearance later of a second similar tumour in the immediate neighbourhood of the first is the result of the growth of a second adenoma so small at the time of the operation as to have passed unnoticed. Cases of multiple fibro-adenomata are common. After many years a small fibro-adenoma may grow rapidly, and especially if this occurs during pregnancy the tumour may attain a great size in a few months. None the less, it remains a simple tumour although now given the more descriptive name of cyst-adenoma. If removed from the breast entire—its lobulated nature may render this a little difficult—or if eradicated by simple mastectomy, cure invariably results.

2. *Duct-papilloma.*—This affection of the breast is unique in being the only one primarily innocent which in time always becomes malignant. Prognosis depends, therefore, upon its recognition before this change has occurred, in which case local excision or simple mastectomy is curative. Unfortunately, in its early stages a duct-papilloma may be symptomless. If, however, either a watery discharge from the nipple with or without an occasional blood stain be present, or puncture of a cyst reveals the presence within it of blood-stained fluid, surgical removal of the affected breast without delay must be advised. If careful histological examination of the suspicious area reveals no penetration of the basement membrane by epithelial elements the prognosis is good.

SPECIFIC INFECTIONS

Tuberculosis.—This rare chronic affection of the breast may occur in a superficial form in or just under the skin, or more deeply as a granulomatous lesion of the breast tissue. Provided that the patient is not suffering from advanced tuberculosis elsewhere—e.g., in the lungs or kidneys—or that the breast is not affected by direct spread of the disease from rib or mediastinum, cure follows simple removal of the affected organ. If from delay in diagnosis or reluctance to adopt this radical line of treatment minor measures are adopted, the disease may run a prolonged course with frequent relapses but with no appreciable risk of generalisation.

Gummata of the breast, if diagnosed, respond readily to antisyphilitic measures. A mistake in diagnosis will almost certainly result in operative removal of the organ with, of course, local cure.

Actinomycosis, the rarest of the three granulomata, has a grave prognosis, if, as is often the case, it is accompanied by an internal manifestation of the disease, or is due to continuous spread from the neck.

"*Chronic mastitis.*"—This term is still used to describe the common clinical condition in which either a segment or the whole gland feels firmer than normal, with a coarse granular surface, but no lump palpable with the flat of the hand. Lenthal Cheatle prefers the name mazoplasia as avoiding any suggestion that inflammation is a factor in its production. His view, based upon prolonged study of the histo-pathology of sections of whole breasts, that the condition by whatever name it is called is never a pre-cancerous one, is borne out by clinical experience and is now generally accepted. The true frequency of the condition is only established by careful routine examination of the breasts of all female patients over middle age, rather than by concentration on those patients who complain of breast pain or a lump in whom examination leads to this diagnosis. It has recently been suggested, as the result of such routine examination in a large number of women, that the clinical condition is so frequent as to be almost physiological, complaint only being made of it if the induration is accidentally discovered or if, for some unexplained reason, pain is associated with it. In any case, evidence is accumulating which tends to absolve this clinical condition from any causal connexion with carcinoma. The removal of breasts, the site of "chronic mastitis," is not demanded therefore as a precautionary measure to avoid the danger of cancer.

As has been stated, many cases remain untreated because no complaint is made. When complaint has been made either of induration or pain or both, simple treatment by well-applied firm pressure, maintained at first by night as well as by day, will give lasting relief in a high proportion of cases. An alternative non-operative measure where this line of treatment fails is a course of X ray treatment, which also results in local resolution and disappearance of pain in most cases. Sometimes pain of a neuralgic character persists in spite of such treatment, but often such cases present other features which suggest that cancer-phobia or an unhappy mental state due to some other cause is a major factor in the persistence of the complaint. In such cases removal of the breast certainly cures the local condition, but may be followed after a longer or shorter interval by complaint of the opposite breast, leading to removal of this organ also.

"*Chronic cystic mastitis.*"—To this condition in which with or without an area of breast induration and nodularity one or more cysts large enough to form definite tumours are met with, Cheatle gives the name cystophorous hyperplasia. The nature of the lump or lumps present is determined by careful examination with the fingers, or an exploratory puncture may evacuate the characteristic dirty opaque fluid contained in these simple cysts. Experience teaches that simple cysts associated with chronic mastitis when treated in this way by simple puncture but rarely

refill, although a similar cyst in a different portion of the breast may develop later. Should a cyst once tapped refill, further tapping is useless, and either local removal or simple mastectomy is required to effect a cure. I have personally never seen a case in which carcinoma has developed after the appearance of cysts of this kind, but Cheatle and others have described its presence in breasts removed on this diagnosis, and hold that in an unknown proportion of cases the process, which may cease at the stage of simple cyst formation in some regions, progresses elsewhere in the breast to cancer.

Conclusion

This brief survey of the outlook in non-malignant diseases of the breast suggests the following conclusions. One only of their number—i.e., that form of epithelial activity which presents itself clinically as a duct-growth—is prone to malignant change and must be looked upon as requiring early surgical eradication. Of the inflammatory lesions only the specific ones, tuberculosis and actinomycosis, are of serious prognosis, when their appearance in the breast forms but a part of established disease elsewhere. And chronic mastitis, the clinical features of which are clearly defined and readily recognisable, is not a "pre-cancerous" condition, and even if intractable need not occasion alarm or the early resort to mutilating operative measures.

ERIC PEARCE GOULD, M.Ch., F.R.C.S.,
Surgeon to Middlesex Hospital.

SPECIAL ARTICLES

BRITISH MEDICAL ASSOCIATION

MEETING IN MELBOURNE

SECTIONS OF PUBLIC MEDICINE AND MEDICAL SOCIOLOGY

AT a combined meeting of these sections, with Sir HENRY GAUVAIN in the chair, a paper was read by Sir RAPHAEL CILENTO (Brisbane) entitled

Racial Pressure Problems in the Pacific

Three propositions, he suggested, were mutually dependent. (1) Every previous culture has had its period of growth, vigour, and dominance; its period of arrest, stalemate, and disillusion; and its decline and fall. (2) Populations, as Malthus said in 1798, always tend to increase up to the limits of available subsistence, and indeed would inevitably do so were they not subject to the positive checks of war, disease, vice, and misery, and also to the prudential check of deliberate limitation. (3) In animals, plants, and also in societies evolution is both progressive and retrogressive constantly, and the specialisation to a particular environment which is a notable factor for advancement, becomes a fatal weakness when the environment is changed. Referring to the works of Oswald Spengler ("The Decline of the West," 1922), Sir Raphael said that Spengler's contribution was the demonstration that not only had the histories of all cultures a general similarity, but the course of each conformed so closely to one standard as to make all essentially identical. From ancient facts, therefore, present tendencies can in the gross be forecast. Spengler claimed that "all that is cosmic bears the hall-mark of periodicity."

The student of Spengler, he went on, would be struck by the fact that he makes no mention of disease or famine in the fate of cultures. The only sickness he knows is sickness of the soul, the only virility, that of the spirit. He seeks no physical stimulus in that "first stirring" towards progress in the basic barbarian mass; and for the fact that the life-blood of every culture pours away in an enormous decline of population he scouts any scientific explanation. He postulates as sufficient a metaphysical "turning toward death" seen only at the end of a culture and in city populations. Nothing was further from the truth. Rivers and others, in "Essays on Depopulation," had found precisely the same thing amongst the primitive savages in Oceania in their island atolls and forests. It was found, amongst the Pacific native cultures, that the depression was secondary to sickness and undernutrition. Population amongst these native races was found declining in places where native institutions flourished with all their original vigour, as well as where they had been destroyed; and the people were thriving in places where white men had entirely disrupted their social organisation, as they must inevitably disrupt it everywhere in the course of time. The factors operating adequately for decline were: (1) Introduced diseases, such as malaria, hookworm, and tuberculosis. (2) Faulty sanitation of environment. (3) Privation and poverty of diet. (4) Abortion and infanticide. Malaria and such chronic diseases were producing lethargy and bodily weariness which prevented anything but the most essential tilling of the soil or foraging for food, while the very poverty of the diet that resulted lowered the resistance to disease and so permitted more frequent disease, with constantly lessened food-supplies, until a point had been reached at which the human organism could no longer cope successfully with the situation. In the most sophisticated city and in the most primitive jungle, therefore, one saw identical results so long as disease and indigence ploughed the body and sowed despair.

Sir Raphael then reviewed ancient and contemporary history, in his examination of the status of women, and its relation to child-bearing. Depopulation and disillusion were merely the negative phases of the equally unbalanced ascent and expectancy of the population period. At the beginning of Queen Anne's reign (1704) the population of England was 6 millions, and only 1 million lived in the cities. In Malthus's day (1798) it had reached 11 millions, and the percentage in towns was doubled. Of the 105 towns of more than 25,000 people in England, 60 had come into being since 1825 (Ripley). The birth-rate increased somewhat in that eighteenth century, remained stationary until about 1876, when economic pressure made prudential limitation advantageous, and had declined persistently since. The death-rate fluctuated and then declined markedly as the fortunes of England rose with the Napoleonic wars. It followed that the great increase in population in this age of urbanisation was due largely to a decline in the death-rate and those favourable factors in environment that brought it about. The world of the nineteenth century was open to the exploiter; expansion was possible into many partly occupied territories, and potential markets lay on every side. A tremendous impetus was given to the Western peoples. In the Pacific it produced, inter alia, three "moonlight" civilisations, as

Spengler calls them, civilisations that take their light from a live source, and may even re-radiate it in a permanent form. They were the United States of America, Australia, and Japan. Japan, originally a "moonlight" offshoot of the Han civilisation of China (A.D. 220) definitely attached itself to the new light of Western civilisation in 1868, and will stand and fall with it. A Japanese culture per se there had never been except in an imitative sense, and the present Japanese Americanisation must not be regarded as Oriental on analysis. In the Pacific itself, our culture struck the Oceanic peoples with considerable violence. The old civilisations of the Dutch East Indies, with peace and increased productivity, responded by an increase of population from 8 millions in 1816 to 37 millions a century later; the specialised primitives of the Oceanic islands, on the other hand, lost 75 per cent. of their populations in two generations.

The apparent truth was, it seemed, that the population a country could support was the population it could provide with gainful employment. Was not this again merely the Malthusian "subsistence"? The rapid fall in the birth-rate, the declining proportion of youth, and with it the declining proportion of potential mothers, were all actually correcting the disparity between population production and consumption in all civilised lands except Italy, Russia, and Japan. This probably meant a new inevitability of conflict with or between these other Powers and a loss of frontiers and culture. The population of Japan had increased in 60 years from 28 to 60 millions. It had now reached saturation point. The density of population represents four persons to the acre of arable land, and is increasing. It appeared inevitable that on the present figures, Japan proper would reach a population of about 113 millions in 1967, at which period England and America would have reached their period of stalemate and decline—and with them Australia. The lack of balance in the diet was of vital importance. In Australia the figures were generally unfavourable. The average age of the population was rising rapidly, and the proportion of youth declining. The natural increase for 1931 was half that for 1891. At the present rate it had been estimated (Exley) that the stable population of Australia was not more than 8,500,000, with excess females of 35 per 1000. The solution was immigration or ultimate invasion.

After reviewing the world situation generally, Sir Raphael concluded by emphasising the essentials of health and the dominant mentality, the requirements to ensure survival in the forthcoming period of increased pressure in the Pacific.

DISCUSSION

Sir JAMES BARRETT (Melbourne) said that in the Pacific the experience with imported labour had been that each race in turn left the fields and went into the city. In Fiji there was a remarakble institution of the native medical school, with four years training. It was run by the Rockefeller Institute and British Government combined. There was, he said, nothing physiologically speaking to prevent the white race from settling in Northern Australia. The birth-rate was better than in the southern cities, and there was practically no tropical disease. The reasons for failure to develop had so far been economic. In the Northern Territory, the rainfall was less than that required, and there could be no pastoral industry until irrigation was practicable. There had been about 70 million pounds spent on the development of Northern Territory and the present population was about 4000. The maximum area of land suitable for cultivation in Australia was about one-eighteenth that of the United States of America. Great tracts of land in Queensland were suitable for pastoral and mineral development only. The greater part of tropical Australia would never be inhabited by us, or any other race.

Dr. D. G. CROLL (Brisbane) thought that Spengler's theory was unacceptable—the fault was the assumption that the present European culture was analogous to others. The present age differed from any other; it was the scientific age and had lasted about 100 years. The dangers from our Pacific neighbours should not be under-estimated. We must increase our population by the combined methods of immigration and raising the birth-rate. A full health service was the best safeguard for the future; the modern conception of health embraced the whole of the personality.

Rev. JOHN FLYNN (Sydney) asked: "Does history repeat itself?" Not entirely, as conditions alter from time to time. An international outlook was essential. It was hard for visitors to realise the size of Australia—one cattle station was larger than the whole of Switzerland! The settlement of Australia was dependent on meteorological factors.

Sir RAPHAEL CILENTO, in reply, deplored the tendency to emphasise the "desert complex" in Australians. The rich coastal fringe of Queensland, which had been described as the only fertile part of Northern Australia, was in acreage larger than the sub-tropical parts of Southern Australia. Science enabled impossibilities to become possibilities, and it was on these latter that we should dwell.

Tropical Medicine

Sir Raphael then took the chair, and Dr. G. CARMICHAEL LOW (London) surveyed briefly some of the great discoveries made in tropical medicine since the beginning of this century. These discoveries had led to vast improvements in the health of those residing in tropical countries, and incidentally to the recognition of tropical medicine as a special branch of medical science. Diseases peculiar to the tropics differed in many respects from those found in temperate zones, and it was this difference, combined with lack of knowledge on these subjects, which had led Sir Patrick Manson to institute special schools for the study of what is now known as tropical medicine. Though this term had been applied to a particular branch of medicine it should be remembered that those desirous of practising in the tropics needed a sound foundation of general medical knowledge. Many diseases, such as sprue and yellow fever, were restricted to the hot parts of the globe, whilst others such as malaria, dysentery, and cholera, although occurring in non-tropical climates, were much more common in the tropics. Another feature of tropical diseases was their transmission by insects, whilst protozoal and helminthic parasites were very important in ætiology. Hence the student wishing to understand tropical medicine needed a special training in entomology, protozoology, and helminthology.

Dr. Low referred to the growth in Europe of institutes for the study of tropical diseases, following the establishment of schools in London and Liverpool. Now America had schools, the three services all had special courses, and recently institutes had been founded at Bombay and Sydney. This development was reflected in the outlook of patients suffering from diseases such as trypanosomiasis and kala-

azar, who could now be successfully treated. In the past thirty-five years advances had taken place which rivalled those in any other branch of medicine. Dealing first with filariasis, Dr. Low said it was Dr. Joseph Bancroft, of Brisbane, who discovered the adult forms of the parasite in a lymphatic abscess of the arm in 1876. Cobbold, to whom the worms were sent for identification, named the parasite *Filaria bancrofti*. Yellow fever had been shown by the American Commission in Havana in 1901 to be spread by mosquitoes, and the causative agent to be a filtrable virus. This enabled the construction of the Panama canal to be completed, and the disease had been practically extinguished from the New World. Work on this disease in Africa by the Rockefeller Commission had greatly advanced our knowledge of the infection, whilst the work of Theiler, fixing the virus for the brain of mice, enabled protective inoculations to be made available for those proceeding to affected regions. The problems of trypanosomiasis and kala-azar—"black fever" of India—had also been solved early in this century, whilst ankylostomiasis and bilharziasis were helminthic diseases in which our knowledge had been notably advanced. Undulant fever, a great debilitating disease in our Mediterranean fleet, had been traced to infected milk.

Perhaps the greatest discovery in tropical medicine was that of the intravenous method for the administration of preparations of antimony (tartar emetic). It had enabled us to control trypanosomiasis (partly), kala-azar, ulcerating granuloma, and bilharziasis, and to rob these terrible diseases of their terrors. Credit was due to Broden and Rodhain for this revolution in therapeutics. In 1907 a second plague commission, by a series of careful experiments, had shown that the rat and its fleas played an important part in the spread of plague, the disease being transmitted from rat to man by the bites of rat-fleas. There had been little advance in the development of treatment. The conquest of beri-beri had been another triumph for tropical medicine—its incidence had been reduced to practically nil. The utility of emetine in amœbic dysentery had been well established, and liver abscess was now very rare.

Turning to the future of tropical medicine, Dr. Low said that many problems awaited solution—for instance, blackwater fever and sprue. Future discoveries would probably be made in the realms of biochemistry and experimental laboratory research. Tropical medicine was of paramount importance to Australia and the mandated territories, and the success of any enterprise in a tropical country was directly proportionate to the extent to which tropical diseases were controlled by a proper practice of tropical medicine in all its aspects.

Dr. C. L. PARK (Singapore), director of the Eastern Bureau, Health Organisation of the League of Nations, followed with a paper on the

INCIDENCE OF DISEASE IN EASTERN COUNTRIES

He agreed, he said, with Dr. Low that there was increased prevalence of certain diseases in the tropical countries. It was the prevalence of what were termed the major infectious diseases—plague, cholera, and small-pox—in Eastern countries and the lack of exact information in regard to their occurrence that had induced the League of Nations, in 1925, to establish an epidemiological intelligence bureau in Singapore. This bureau was kept informed by cable of the development and course of such diseases in every country throughout the East, and disseminated this information by wireless and cable.

Plague in the East existed in three main centres—India, the Netherlands Indies, and China. In India the mortality had fallen from 1,170,000 in 1907 to 30,000 in 1930. Epidemic prevalence was in the Punjab and United Provinces, whilst Bombay was the principal endemic centre. It would be noted that the absence of epidemics from Punjab had accounted in great part for the fall in mortality between 1927 and 1931. There was a definite seasonal prevalence, particularly marked in Punjab and United Provinces. The maximum seasonal prevalence in Bombay corresponded with the minimum in the epidemic areas. Webster's work in Bombay and Madras indicated that it was the "blocking" phenomenon that was influenced by climate—more infected fleas becoming "infective" when conditions were favourable. In the Dutch Indies the evolution of plague was demonstrated in Java. Introduced in 1911 via Soerabaia, it persisted in epidemic form in the interior of East Java until 1915. After a free period, extending to 1918, a further introduction, via Semarang, led to the infection in epidemic form of Mid-Java, which persisted until 1928. Subsequently West Java became infected via Cheribon, and now the disease was mainly confined to the mountainous districts of Bandoeng and Garoet, in Western Java. It had thus taken twenty years for the disease to reach West Java, and it was noticeable that there had been no tendency to recrudescence. The seasonal prevalence in Java did not correspond with that in India, the maximum period being reached in December in the wet season in Java, as compared with the March-April maximum in India, which is the dry season. In China there were three active centres—in Fukien, in Shensi-Shanis area, and in Manchuria. In each of these areas the disease was of bubonic type, and the *X. cheopis* was the vector. The opening up of roads and railways in the north, which was rapidly proceeding, might be the means of disseminating the disease. Control measures were: in India, the use of Haffkine's vaccine as preventive measure, along with the application of specific anti-rat measures; in Java, house reconstruction was carried out to destroy and prevent rat harbourage. In addition, large-scale mass inoculation was being used with a living avirulent vaccine prepared by Otten, in Bandoeng. High immunity was obtained. As regards transfer from one country to another, prevention consisted of measures of deratisation applied regularly and rat-proofing of vessels.

Cholera.—The mortality in India was shown to fluctuate from year to year, but the general trend was downward. The cholera season in India generally was the monsoon season, except in Bengal. Epidemic cholera was associated with high relative humidity. Control measures included a piped public water-supply, inoculation and use of bacteriophage. The value of the last-named was uncertain but it did reduce infectivity and hence indirectly epidemic spread.

Small-pox.—India was again the principal focus. Particularly favourable were figures from Java where in 1932 only 39 cases occurred in a population of 42 millions; also in Japan. This was due entirely to systematic vaccination and revaccination.

The control of *malaria* was, Dr. Park concluded, essentially a local problem.

In the discussion which followed Dr. F. W. P. CLUVER (Durban), Dr. E. T. BRENNAN (New Guinea), Prof. HARVEY SUTTON (Sydney), Prof. J. A. GUNN

(Melbourne), Dr. J. S. PURDY (Sydney), and Dr. A. G. BUTLER (Duntroon, F.C.T.) took part.

Dr. LOW, in replying, stressed the use of quinine as a prophylactic against infection with malaria.

Weil's Disease

Dr. T. J. COTTER (Townsville, Queensland) gave an account of the outbreak of Weil's disease in North Queensland in October, 1933, the first known occurrence of the disease in Australia. In fatal cases death occurred between the eighth and the fifteenth days. Convalescence was sometimes very prolonged. Patients were all healthy adult males, workers in the cane-fields. There was no record of case-to-case infection. Heavy rat infestation was present on the fields. Leptospiræ were isolated from 30 per cent. of rodents examined and the pathogenicity established by guinea-pig inoculation. Dr. Cotter stressed the importance of the disease from both the health and the economic aspects. Rat infestation must be fought by repeated poisoning campaigns and clearing of harbourage. The question of prophylactic inoculation (vaccination) was worth consideration.

SECTION OF SURGERY

AT a meeting of this section presided over by Sir CARRICK ROBERTSON (New Zealand) a discussion on

Prostatectomy

was opened by Mr. A. CLIFFORD MORSON (London). Radical cure, he said, was the ideal to be aimed at in adenomatous disease of the prostate; incomplete removal of the diseased portion of the gland resulted in recurrence. For this reason he was not in favour of transurethral methods; the patient was not permanently relieved of his symptoms. The Harris technique was, he thought, a definite advance on those of Freyer and Thomson-Walker. Not only was it a hæmostatic operation, but an attempt was made to obtain healing by first intention within the prostatic cavity. The post-prostatic pouch was obliterated by drawing down the base of the bladder to the level of the bed of the prostate; and, lastly, the bladder could be closed and the patient relieved of an otherwise uncomfortable convalescence. With the urethroscope and cysto-urethroscope he had observed the changes in the bladder and the urethra after the Harris operation. If there had been failure to unite the trigonal flap to the torn edge of the urethra, healing was by second intention. This area, which in his own cases varied from one to five millimetres, healed very slowly, taking up to six weeks, although the abdominal wound had already healed and micturition was almost normal. Pyuria persisted so long as there was an internal wound. Mr. Morson said he had adopted the Harris technique with certain minor modifications. An anterior lighted retractor was used together with a prostatic speculum. The speculum gave perfect visibility of the prostatic bed, and by compressing the vessels, produced hæmostasis whilst the sutures were being inserted. He preferred a figure-of-eight stitch to the anterior transverse sutures used by Harris, because it acted as a better hæmostatic and produced a better closure of the cavity. Division of the vas guaranteed avoidance of epididymo-orchitis. As well as this he attempted to sterilise the seminal vesicles by irrigation through the proximal end of the divided vas with 1 in 60 carbolic acid. There was a danger of secondary hæmorrhage if there had been failure to approximate the trigone to the fractured urethral end. It usually occurred about 24 hours after the removal of the urethral tube. It responded readily to hot irrigations or suprapubic cystostomy.

Mr. JOHN TAIT (Melbourne) said that asepsis was essential in the Harris operation and this was difficult to obtain in all cases. The methods used to control hæmorrhage were packing, Pilcher's bag, and suture; and of these suture was ideal. With the use of the latter the danger of primary hæmorrhage had been abolished, although he remembered one fatal case following too early application of suction drainage. Secondary hæmorrhage still occurred on separation of the sutures. He believed that one of the factors in secondary hæmorrhage was early closure of the bladder, and he therefore kept a small tube in the bladder until after the fourteenth day. He agreed that it was important to divide the vas but the difficulty was to do this at the correct time.

Mr. F. MACKAY (Auckland) stated that the older methods had an evil reputation with the public, and this probably accounted for the sudden influx of transurethral methods which were not curative. He regarded the Harris operation as the ideal, but reserved it for adenomatous enlargement. Endoscopic methods were used for the fibrous and malignant prostates. Even after prolonged suprapubic drainage the Harris technique could be performed. Strict attention to the details advocated by Harris was essential for the success of the operation, particularly with regard to asepsis.

Mr. G. H. BURNELL (Adelaide) discussed the value of renal efficiency tests. The blood-urea test was inefficient and he relied upon the Thomas modification of the indigo-carmine test. A series of successive tests was of great value. If only one test was done it should be performed only after seven to ten days' catheter drainage. He strongly advocated the Harris technique. He always brought the trigonal stitch back through the apex of the trigone to prevent buckling. The vas was always ligated. Results from the Adelaide Hospital showed a mortality of up to 18·8 per cent. for non-sutured operations. With sutured operations the mortality was 4·9 per cent. In a small series using the Harris technique there had been no deaths.

Mr. RICHARD HARRIS (Sydney) regretted that his brother was unable to be present. Speaking on his behalf he wished to point out that their success had been due to rigid attention to detail. The mortality in 547 cases was 2·7 per cent. The incision was always a transverse one two inches above the symphysis pubis. Closure of the abdomen was not safe with a vertical incision. He claimed that by the intra-urethral enucleation of the gland, the verumontanum was left intact. They had found that by use of the Harris retractor the prostatic cavity could be seen perfectly well without any additional modification. He emphasised that the plastic was not by a flap of trigonal mucosa but by the whole thickness of the trigone. The anterior transverse sutures had been used satisfactorily and he preferred them to the figure-of-eight suture which tended to produce sloughing. The indigo-carmine test was relied upon solely after seven days' catheter drainage.

Mr. C. ROCHE (Melbourne) advocated the use of the resectoscope for selected cases, especially fibrous prostates and mild adenomatous disease.—Mr. F. GILL (Perth) supported the Harris technique, but

azar, who could now be successfully treated. In the past thirty-five years advances had taken place which rivalled those in any other branch of medicine. Dealing first with filariasis, Dr. Low said it was Dr. Joseph Bancroft, of Brisbane, who discovered the adult forms of the parasite in a lymphatic abscess of the arm in 1876. Cobbold, to whom the worms were sent for identification, named the parasite *Filaria bancrofti*. Yellow fever had been shown by the American Commission in Havana in 1901 to be spread by mosquitoes, and the causative agent to be a filtrable virus. This enabled the construction of the Panama canal to be completed, and the disease had been practically extinguished from the New World. Work on this disease in Africa by the Rockefeller Commission had greatly advanced our knowledge of the infection, whilst the work of Theiler, fixing the virus for the brain of mice, enabled protective inoculations to be made available for those proceeding to affected regions. The problems of trypanosomiasis and kala-azar—"black fever" of India—had also been solved early in this century, whilst ankylostomiasis and bilharziasis were helminthic diseases in which our knowledge had been notably advanced. Undulant fever, a great debilitating disease in our Mediterranean fleet, had been traced to infected milk.

Perhaps the greatest discovery in tropical medicine was that of the intravenous method for the administration of preparations of antimony (tartar emetic). It had enabled us to control trypanosomiasis (partly), kala-azar, ulcerating granuloma, and bilharziasis, and to rob these terrible diseases of their terrors. Credit was due to Broden and Rodhain for this revolution in therapeutics. In 1907 a second plague commission, by a series of careful experiments, had shown that the rat and its fleas played an important part in the spread of plague, the disease being transmitted from rat to man by the bites of rat-fleas. There had been little advance in the development of treatment. The conquest of beri-beri had been another triumph for tropical medicine—its incidence had been reduced to practically nil. The utility of emetine in amœbic dysentery had been well established, and liver abscess was now very rare.

Turning to the future of tropical medicine, Dr. Low said that many problems awaited solution—for instance, blackwater fever and sprue. Future discoveries would probably be made in the realms of biochemistry and experimental laboratory research. Tropical medicine was of paramount importance to Australia and the mandated territories, and the success of any enterprise in a tropical country was directly proportionate to the extent to which tropical diseases were controlled by a proper practice of tropical medicine in all its aspects.

Dr. C. L. PARK (Singapore), director of the Eastern Bureau, Health Organisation of the League of Nations, followed with a paper on the

INCIDENCE OF DISEASE IN EASTERN COUNTRIES

He agreed, he said, with Dr. Low that there was increased prevalence of certain diseases in the tropical countries. It was the prevalence of what were termed the major infectious diseases—plague, cholera, and small-pox—in Eastern countries and the lack of exact information in regard to their occurrence that had induced the League of Nations, in 1925, to establish an epidemiological intelligence bureau in Singapore. This bureau was kept informed by cable of the development and course of such diseases in every country throughout the East, and disseminated this information by wireless and cable.

Plague in the East existed in three main centres—India, the Netherlands Indies, and China. In India the mortality had fallen from 1,170,000 in 1907 to 30,000 in 1930. Epidemic prevalence was in the Punjab and United Provinces, whilst Bombay was the principal endemic centre. It would be noted that the absence of epidemics from Punjab had accounted in great part for the fall in mortality between 1927 and 1931. There was a definite seasonal prevalence, particularly marked in Punjab and United Provinces. The maximum seasonal prevalence in Bombay corresponded with the minimum in the epidemic areas. Webster's work in Bombay and Madras indicated that it was the "blocking" phenomenon that was influenced by climate—more infected fleas becoming "infective" when conditions were favourable. In the Dutch Indies the evolution of plague was demonstrated in Java. Introduced in 1911 via Soerabaia, it persisted in epidemic form in the interior of East Java until 1915. After a free period, extending to 1918, a further introduction, via Semarang, led to the infection in epidemic form of Mid-Java, which persisted until 1928. Subsequently West Java became infected via Cheribon, and now the disease was mainly confined to the mountainous districts of Bandoeng and Garoet, in Western Java. It had thus taken twenty years for the disease to reach West Java, and it was noticeable that there had been no tendency to recrudescence. The seasonal prevalence in Java did not correspond with that in India, the maximum period being reached in December in the wet season in Java, as compared with the March-April maximum in India, which is the dry season. In China there were three active centres—in Fukien, in Shensi-Shanis area, and in Manchuria. In each of these areas the disease was of bubonic type, and the *X. cheopis* was the vector. The opening up of roads and railways in the north, which was rapidly proceeding, might be the means of disseminating the disease. Control measures were: in India, the use of Haffkine's vaccine as preventive measure, along with the application of specific anti-rat measures; in Java, house reconstruction was carried out to destroy and prevent rat harbourage. In addition, large-scale mass inoculation was being used with a living avirulent vaccine prepared by Otten, in Bandoeng. High immunity was obtained. As regards transfer from one country to another, prevention consisted of measures of deratisation applied regularly and rat-proofing of vessels.

Cholera.—The mortality in India was shown to fluctuate from year to year, but the general trend was downward. The cholera season in India generally was the monsoon season, except in Bengal. Epidemic cholera was associated with high relative humidity. Control measures included a piped public water-supply, inoculation and use of bacteriophage. The value of the last-named was uncertain but it did reduce infectivity and hence indirectly epidemic spread.

Small-pox.—India was again the principal focus. Particularly favourable were figures from Java where in 1932 only 39 cases occurred in a population of 42 millions; also in Japan. This was due entirely to systematic vaccination and revaccination.

The control of *malaria* was, Dr. Park concluded, essentially a local problem.

In the discussion which followed Dr. F. W. P. CLUVER (Durban), Dr. E. T. BRENNAN (New Guinea), Prof. HARVEY SUTTON (Sydney), Prof. J. A. GUNN

(Melbourne), Dr. J. S. PURDY (Sydney), and Dr. A. G. BUTLER (Duntroon, F.C.T.) took part.

Dr. LOW, in replying, stressed the use of quinine as a prophylactic against infection with malaria.

Weil's Disease

Dr. T. J. COTTER (Townsville, Queensland) gave an account of the outbreak of Weil's disease in North Queensland in October, 1933, the first known occurrence of the disease in Australia. In fatal cases death occurred between the eighth and the fifteenth days. Convalescence was sometimes very prolonged. Patients were all healthy adult males, workers in the cane-fields. There was no record of case-to-case infection. Heavy rat infestation was present on the fields. Leptospiræ were isolated from 30 per cent. of rodents examined and the pathogenicity established by guinea-pig inoculation. Dr. Cotter stressed the importance of the disease from both the health and the economic aspects. Rat infestation must be fought by repeated poisoning campaigns and clearing of harbourage. The question of prophylactic inoculation (vaccination) was worth consideration.

SECTION OF SURGERY

AT a meeting of this section presided over by Sir CARRICK ROBERTSON (New Zealand) a discussion on

Prostatectomy

was opened by Mr. A. CLIFFORD MORSON (London). Radical cure, he said, was the ideal to be aimed at in adenomatous disease of the prostate; incomplete removal of the diseased portion of the gland resulted in recurrence. For this reason he was not in favour of transurethral methods; the patient was not permanently relieved of his symptoms. The Harris technique was, he thought, a definite advance on those of Freyer and Thomson-Walker. Not only was it a hæmostatic operation, but an attempt was made to obtain healing by first intention within the prostatic cavity. The post-prostatic pouch was obliterated by drawing down the base of the bladder to the level of the bed of the prostate; and, lastly, the bladder could be closed and the patient relieved of an otherwise uncomfortable convalescence. With the urethroscope and cysto-urethroscope he had observed the changes in the bladder and the urethra after the Harris operation. If there had been failure to unite the trigonal flap to the torn edge of the urethra, healing was by second intention. This area, which in his own cases varied from one to five millimetres, healed very slowly, taking up to six weeks, although the abdominal wound had already healed and micturition was almost normal. Pyuria persisted so long as there was an internal wound. Mr. Morson said he had adopted the Harris technique with certain minor modifications. An anterior lighted retractor was used together with a prostatic speculum. The speculum gave perfect visibility of the prostatic bed, and by compressing the vessels, produced hæmostasis whilst the sutures were being inserted. He preferred a figure-of-eight stitch to the anterior transverse sutures used by Harris, because it acted as a better hæmostatic and produced a better closure of the cavity. Division of the vas guaranteed avoidance of epididymo-orchitis. As well as this he attempted to sterilise the seminal vesicles by irrigation through the proximal end of the divided vas with 1 in 60 carbolic acid. There was a danger of secondary hæmorrhage if there had been failure to approximate the trigone to the fractured urethral end. It usually occurred about 24 hours after the removal of the urethral tube. It responded readily to hot irrigations or suprapubic cystostomy.

Mr. JOHN TAIT (Melbourne) said that asepsis was essential in the Harris operation and this was difficult to obtain in all cases. The methods used to control hæmorrhage were packing, Pilcher's bag, and suture; and of these suture was ideal. With the use of the latter the danger of primary hæmorrhage had been abolished, although he remembered one fatal case following too early application of suction drainage. Secondary hæmorrhage still occurred on separation of the sutures. He believed that one of the factors in secondary hæmorrhage was early closure of the bladder, and he therefore kept a small tube in the bladder until after the fourteenth day. He agreed that it was important to divide the vas but the difficulty was to do this at the correct time.

Mr. F. MACKAY (Auckland) stated that the older methods had an evil reputation with the public, and this probably accounted for the sudden influx of transurethral methods which were not curative. He regarded the Harris operation as the ideal, but reserved it for adenomatous enlargement. Endoscopic methods were used for the fibrous and malignant prostates. Even after prolonged suprapubic drainage the Harris technique could be performed. Strict attention to the details advocated by Harris was essential for the success of the operation, particularly with regard to asepsis.

Mr. G. H. BURNELL (Adelaide) discussed the value of renal efficiency tests. The blood-urea test was inefficient and he relied upon the Thomas modification of the indigo-carmine test. A series of successive tests was of great value. If only one test was done it should be performed only after seven to ten days' catheter drainage. He strongly advocated the Harris technique. He always brought the trigonal stitch back through the apex of the trigone to prevent buckling. The vas was always ligated. Results from the Adelaide Hospital showed a mortality of up to 18·8 per cent. for non-sutured operations. With sutured operations the mortality was 4·9 per cent. In a small series using the Harris technique there had been no deaths.

Mr. RICHARD HARRIS (Sydney) regretted that his brother was unable to be present. Speaking on his behalf he wished to point out that their success had been due to rigid attention to detail. The mortality in 547 cases was 2·7 per cent. The incision was always a transverse one two inches above the symphysis pubis. Closure of the abdomen was not safe with a vertical incision. He claimed that by the intra-urethral enucleation of the gland, the verumontanum was left intact. They had found that by use of the Harris retractor the prostatic cavity could be seen perfectly well without any additional modification. He emphasised that the plastic was not by a flap of trigonal mucosa but by the whole thickness of the trigone. The anterior transverse sutures had been used satisfactorily and he preferred them to the figure-of-eight suture which tended to produce sloughing. The indigo-carmine test was relied upon solely after seven days' catheter drainage.

Mr. C. ROCHE (Melbourne) advocated the use of the resectoscope for selected cases, especially fibrous prostates and mild adenomatous disease.—Mr. F. GILL (Perth) supported the Harris technique, but

emphasised the importance of deep X ray therapy in some adenomatous glands.—Mr. JOHN KENNEDY (Melbourne) asked whether the figures given by Mr. Morson and Mr. Burnell were of selected cases. He considered that it was important in old people particularly to get the patient off the table quickly. In these cases he relied upon Pilcher's bag.—Sir HENRY NEWLANDS (Adelaide) noted with approval the post-operative investigation conducted by Mr. Morson. It was irrational to expect primary healing with digital removal.

Mr. MORSON, replying, said that he did select his cases; it was useless to perform prostatectomy on the nearly moribund. He was glad to hear that transurethral methods had not gained support in Australia. They were of some use in fibrous and malignant prostates, but even in the latter he thought suprapubic cystostomy was preferable. He had found that retention of urine followed the use of X rays in these cases. In reply to Mr. Richard Harris, he said that Mr. Harry Harris had watched his use of the figure-of-eight suture with approval.

With Mr. F. C. PYBUS (Newcastle-on-Tyne) in the chair, a discussion on

Carcinoma of the Colon

was opened by Mr. H. B. DEVINE (Melbourne). The problem before the surgeon in carcinoma of the colon was to reduce the high operative mortality, which ranged between 15 per cent. and 57 per cent. in well-equipped clinics. The disease was a relatively benign type of malignancy, and if the operative mortality-rate could be improved, it would be the one malignant disease eminently curable by surgery. He proposed to direct his remarks to carcinoma of the distal colon; he wished to state, however, that it was his practice in carcinoma of the proximal colon to employ an enterotome method rather than the sutured anastomosis of ileum to transverse colon. The technique had been published in THE LANCET (1931, i., 627). In carcinoma of the distal colon one of the main factors in the high operative mortality was the presence of intestinal obstruction, acute or chronic. The adverse pre-operative conditions which were present could be improved by:

(1) Earlier diagnosis. He stressed particularly X ray methods showing a mucous membrane relief pattern.
(2) Improvement of the patient's general resistance by intravenous therapy and transfusions.
(3) Measures to combat the effects of intestinal obstruction. Routine colonic drainage should precede all operations for carcinoma of the colon and must be continued for an adequate time. The usual methods of drainage, cæcostomy, and colostomy, with or without a spur, were ineffective because they did not completely and permanently disconnect the distal from the proximal colon.

The traditional methods of operation for colonic carcinoma were a sutured anastomosis and the Paul-Mickulicz technique. The former carried a very high mortality; the latter, though safe, was suitable only for carcinomata of the middle of the sigmoid or the transverse colon. In other situations the amount of bowel and lymphatic field which could be removed was inadequate. In cases which were not amenable to Paul's operation, Mr. Devine had devised a method of operating which he had employed with success. Its essentials were as follows:

(1) The proximal and distal colons are "disconnected" at the transverse colon. The completeness of the disconnexion is ensured by inserting the cut ends of the bowel into separate small openings in the abdominal wall.
(2) The "defunctioned" bowel is washed out with warm olive oil, so that the bacterial content was reduced.
(3) The growth and the correct amount of mesenteric leaf are subsequently excised.
(4) Closure of the "disconnecting anus."

In the upper part of the distal colon a sutured anastomosis can now be performed under aseptic conditions. In carcinoma near the recto-sigmoid junction the affected segment of the "defunctioned" distal colon is excised, the rectal stump closed and covered with peritoneum, and the cut end of the sigmoid implanted into the wound. At a later stage the anastomosis between the rectum and the sigmoid can be done without fear of failure. This anastomosis can be made by suture, but if the resection site is too low a telescopic method is used, the distal colon being drawn through the rectal stump.

Mr. V. HURLEY (Melbourne) said that most cases were seen too late, when intestinal obstruction or spread of the growth had occurred. He emphasised the importance of early diagnosis. Suspicion should be aroused by the presence of minor symptoms and signs, of which alteration in bowel habit was the most important. Occasionally upper abdominal dyspepsias and appendicitis were mimicked. Occult blood tests, routine sigmoidoscopy, and bimanual palpation were all necessary parts of the examination. Barium enema and barium meal, though essential, should not be regarded as the final court of appeal. Occasionally the administration of a barium meal was followed by fæcal impaction and intestinal obstruction. Where intestinal obstruction was present he advised laparotomy and ileo-transverse colostomy for cæcal growths; and proximal drainage, either colostomy or cæcostomy, in the rest of the colon. In very ill patients cæcostomy under a local anæsthetic was the operation of choice. He advocated the staged Mickulicz operation wherever possible. When mobilisation was difficult a sutured anastomosis with proximal drainage of the bowel was performed. The incisions could be planned so that the approach was directly over the growth. The anæsthetic for preference was local infiltration together with gas-and-oxygen.

Mr. ALAN NEWTON (Melbourne) agreed with the surgical procedures advocated by Mr. Devine for left-sided growths. With right-sided growths he preferred to perform an ileo-transverse colostomy. He could see no advantage in the Devine modification of the Mickulicz operation for these growths, as it was an equally long operation. Obstruction after a sutured anastomosis of this type was uncommon, but could easily be overcome by ileostomy under local anæsthesia.

Mr. JOHN RAMSAY (Tasmania) advised the Mickulicz operation for colonic tumours because of its ease and safety.

The CHAIRMAN (Mr. Pybus) spoke of the similarity of symptoms of these growths to those caused by the dyspepsias and by diverticulitis. Even at operation it was often difficult to decide between the latter and carcinoma. The real problem was one of early diagnosis. If this could be done, resection and suture could be performed with safety. He agreed with Mr. Devine's method of "defunctioning" the colon. Cæcostomy gave very poor drainage. He suggested that special departments should be instituted at hospitals for the investigation of gastro-intestinal cases.

Mr. DEVINE briefly replied to other speakers. He preferred a central incision to the incision centred

over the growth as suggested by Mr. Hurley. In answer to Mr. Newton, he said he thought his enterotome method for right-sided growths was safer than sutured anastomosis. The trouble with the latter procedure was not post-operative obstruction but infection at the suture line. He agreed with Mr. Pybus's statement that early diagnosis was the key to the problem, but until this was fulfilled he claimed that the methods he had advocated, particularly the "defunctioning" of the colon, would definitely reduce the operative mortality.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

AT a meeting of this section, Prof. EDWIN BRAMWELL presiding, Dr. W. S. DAWSON (Sydney) opened a discussion on the

Psychoses of Adolescence

The subject, he said, was of importance, not so much by reason of the total number of cases occurring at this age-period, but because it was during adolescence that the first manifestations of two outstanding clinical syndromes appeared. The incidence of psychoses rose from the age of 15, before which insanities were infrequent. On the other hand, the history of some adolescent psychoses indicated that a change of disposition might occur several years before initiation of treatment. After the age of 20 the insanity-rate continued to rise more gradually. The onset of manic-depressive psychosis and dementia præcox showed a maximum incidence between 20 and 25 years of age. Epilepsy and delinquency showed a similar age-incidence pointing to a heightened instability at this period.

During adolescence body and brain attained their maximum development, although organisation of nervous structures proceeded afterwards. The activity of the endocrine system was increased and the sexual apparatus matured. The brain normally should function as the arbitrator between inner urges and stimuli derived from the exterior. It was probable that some forms of adolescent instability were due to unequal development of the controlling and impulsive mechanisms. Physique might outgrow prudence. An emotional disturbance, closely related to the transition from egocentricity to altruism, accompanied the physiological unrest of the period. Youth should be full of effort. The quiet passive adolescence was one that seemed most likely to develop the more serious psychoses. Erotic manifestations, provided they were kept within bounds, were less subject to repression and reprobation in these days. The classification Dr. Dawson suggested was:

(A) Organic group ..	Confusional psychoses. Psychoses associated with epidemic encephalitis. General paralysis and epilepsy.
(B) Biogenic and functional group.	Manic-depressive psychosis. Dementia præcox or schizophrenia.

The confusional psychosis was not common in adolescence, apart from that accompanying an acute infective illness. Alcohol and the puerperium, common factors in later life, were not of much importance. Usually no previous psychopathic tendencies had been displayed, but a history of prolonged physical or mental distress was usual. In early and mild cases there was difficulty in concentration and an appearance of perplexity. Impairment of awareness of the environment was responsible for suspicions of the actions of others. When the patient was silent or inaccessible, distinction from melancholia might not be easy. Some cases exhibited catalepsy and flexibilitas cerea. With the absence of any marked introversion the prognosis was good.

Closely associated were the mental disturbances of acute encephalitis, taking usually the form of a drowsy delirium, sometimes of the occupational type, with hallucinations or illusions of various senses. The organic signs usually but not always excluded a hysterical or psychotic stupor. Actual dementia might occur, as in neurosyphilis, but the striking features were deterioration of moral sense, and a proneness to impulsive violence uncommon in juvenile paresis. At times there was some difficulty in differentiating parkinsonism, melancholia, and catatonia; or again there might be a resemblance to neurasthenia or mild melancholia. Later the signs of prepyramidal disorder rendered the diagnosis clear. Attention to the mode of onset and the previous personality was of assistance. Such features as hallucinations, delusions, and oddities of behaviour common in dementia præcox were absent. Juvenile general paralysis accounted for only a small proportion of the psychoses of adolescence, the mental symptoms often resembling dementia præcox.

The term dementia præcox was first employed by Morel in 1860. Although well described by various observers, Meyer in 1906 opened new avenues to the understanding of the condition. He emphasised the importance of the distinction between fundamental and incidental symptoms. As fundamental he pointed to the lack of adaptability often displayed before the recognition of the actual psychosis. He also discouraged the emphasis on dementia. Part at least of the symptoms were due to a deterioration of conduct which was not beyond remedy. He and his pupils had attempted to define the prepsychotic traits. They found reticent seclusive unadaptable individuals, sensitive and passively stubborn; showing little interest in what was about them. They tended to live in a world of fancies. An emotional inadequacy was significant. Character development was liable to be stunted through the absence of social contacts. Unhealthy ruminations, sexual perversions, devotion to abstract study, religious exercises which savoured more of self gratification or of a maudlin sentimentality, were some of the undesirable accretions of introversion. This must of course be distinguished from the life of retirement and self-denial which was creative.

The manic-depressive group had also a hereditary and constitutional background. The incidence was greatest in adolescence and early adult life. In the prepsychotic personality there was often evidence of depressive and hypochondriacal trends. In a series of cases with depressions of all intensities, the speaker found that a third had a history pointing to marked introversion. The typical features of this psychosis in adolescence were hypochondriacal complaints and fears in depressed cases; and exaggerated egotism and over-confidence of personal capacity, with intolerance of discipline, and erotic trends, in maniacal cases.

Many of the cases could not be pigeon-holed into any of the above two categories, some showing features of all types. Our difficulties might arise from attaching an exaggerated importance to a minute analysis of ideation and behaviour, without proper reference to personality and circumstance. The more normal the individual, the richer his

interests; the greater the previous physical and mental stresses, and the more rapid the onset of mental symptoms, the better the prognosis. The principles of treatment laid down by Clouston in 1891 should not be departed from. "Build up the bone and fat and muscle" and "rather restrain the imaginative and artistic faculties and sensitiveness and idealisms generally, in the cases where such tend to appear too early and too keenly. . . . Cultivate and insist on orderliness and method in all things." Using Hughlings Jackson's phrase, there is usually some "intact remainder" to work upon. The recognition and correlation of anomalies of character and temperament during the school years, and the examination of the children of psychotic parents, offered a possibility of preventing or arresting more serious mental abnormalities.

Prof. K. H. BOUMAN (Amsterdam) dealt with schizophrenia as a form of genetic regression. Alzheimer in 1900 made clear that a loss of cells in the supragranular layers of the cortex occurred in dementia præcox. Nissl, Josephy (1922), Naito (1924), Bouman (1924–1928), Hechst and Miskolczy and others came to the same conclusion. It was a disease of cortical origin in which the ganglion cells underwent fatty degeneration and sclerosis and disappeared, the glia not usually being active. The third layer was most affected, but also the others, especially the fifth. Where clinically severe agitation had been present we might find glial activity, ganglion cells loaded with lipoid, and blood-vessels surrounded with fatty substance. The disturbance of higher motor function—e.g., hyperkinesia, akinesia, katalepsia, katatonia—suggested that the striatal region might play some part in the disease. The speaker by cell counts of the cortex believed that there was a loss of cells in all the layers in the order 3, 2, 5, 6, and 4. Miskolczy gave the order as 3, 5, 6, 2, and 4. There must be a close connexion between structure and function. Kappers believed the functions of the six cortical layers to be as follows: layer 1 conducted the functions of the senses; 2 possessed short intracortical and receptive functions; 3 was an association of longer intercortical connexions; 4 had chiefly a complex receptive function; 5 and 6 a system of motor conduction. Layers 2, 3, and 4 therefore formed a place where afferent impressions were translated into motor activity. The third layer was young phylogenetically and ontogenetically. The main areas of cortex affected in schizophrenia were those peculiar to man. Mott's demonstration of alteration in the sexual glands, together with these changes, suggested an insufficient progenerative power of the matrix material of both tissues. The anatomical regression of the cortex created an organism with more primitive modes of thought, in which causal and logical relations disappeared.

Representatives of modern psycho-analysis, as Jung and Abraham, supposed the symptoms of schizophrenia to be connected with very early emotional experiences. The idea of regression was an essential part of all these considerations and studies; but in the psychoses, regression went back to a much earlier stage of psychical evolution than in any neurosis. There was a break between the ego and the world outside; fancy and reality flowed together, and the psyche retreated into a world of its own where very primitive forms of thought ruled. This was the world of the primitive, where reigned the myth; the world of the dreamer, the young child, the artist, and the schizophrenic as well.

DISCUSSION

Dr. A. W. CAMPBELL (Sydney) from his experience of practice in both England and Australia was of the opinion that the prognosis of the mental disorders of adolescence was rather better in this country, where living and climatic conditions are better. He confessed himself unable to forsee insanity in the young; and he thought the school-teacher best placed to undertake this early study.

Dr. C. FARRAN-RIDGE (Melbourne) dealt with the problem of the prevention of dementia præcox, apart from eugenic measures. He said that in the case of persons in whom the predisposition was strong, no environment however favourable, no training however well directed, would suffice to avert the development of the disorder. In the case of persons in whom the predisposition was of moderate strength shelter, guidance, and habits of training would sometimes prevent a breakdown. If the predisposition were slight the patient could often be helped to go further and accomplish more than if left unaided. The instinct in which he would be most lacking was that of pugnacity, and he should accordingly be made to realise the impossibility of getting through life without fighting.

Dr. J. K. ADEY (Melbourne) raised the question of the prognosis in dementia præcox. Some recovered, and he wondered if these could be separated from the incurable group. Forty per cent. of all primary dements dying in Victoria showed small hands and narrow aorta. Cyanosis of the hands, even in warm weather, was common. He had recently taken skiagrams of the hearts of 45 primary dements belonging to the silent non-violent group. Of these, 12 showed small hearts and cyanotic hands, and had not recovered; of the remaining 33 there had been 6 recoveries. He believed therefore that an X ray examination had some value in prognosis.

Dr. J. F. WILLIAMS (Melbourne) dealt with the prepsychotic personality. It was difficult to distinguish types of personality which might become psychotic. He pointed out the value of the nursing schools at the hospitals. Personality defects might be modified in these schools, which were valuable for both difficult and prepsychotic children. Such defects as negativism, complete withdrawal and lack of interest might melt away in such an environment.

Prof. J. P. LOWSON (Brisbane) dealt with the psychological treatment of the accessible case. He thought that the psychoses were not nearly so unmodifiable as some years ago. Some may be reduced to the level of a neurasthenia. To accomplish anything one must be prepared to keep at them.

Dr. H. F. MAUDSLEY (Melbourne) remarked that many adolescents passed through a stage resembling schizophrenia and recovered to live normally. He distinguished certain types: (1) an acute pernicious type without prodromata; (2) a subacute type with remissions and exacerbations; (3) a type that was clinically cured.

NEW HOSPITAL FOR HERNE BAY.—The foundation-stone of a new hospital for Herne Bay was laid on Sept. 27th, when the dedication ceremony was conducted by the Bishop of Dover. The hospital will provide accommodation for 34 beds and it will be possible to add a further 50 later if they are needed. It will cost about £18,000, of which £13,500 has already been raised.

THE WAR MENTALITY

AN ADDRESS TO STATESMEN

WHAT follows is the text of a letter sent by 350 psychiatrists and psychologists to "all the statesmen of the world." It is issued from Haarlem by Dr. J. Roorda, hon. secretary of the committee for war prophylaxis of the Netherlands Medical Association. The names reproduced below are those of signatories in the British Isles:—

TO THE STATESMEN

SIR,—We psychiatrists, whose duty it is to investigate the normal and diseased mind, and to serve mankind with our knowledge, feel impelled to address a serious word to you in our quality of physicians. It seems to us that there is in the world a mentality which entails grave dangers to mankind, leading, as it may, to an evident war-psychosis.

War means that all destructive forces are set loose by mankind against itself. War means the annihilation of mankind by technical science. As in all things human, psychological factors play a very important part in the complicated problem of war. If war is to be prevented the nations and their leaders must understand their own attitude towards war. By self-knowledge a world calamity may be prevented.

Therefore we draw your attention to the following:

1. There is a seeming contradiction between the conscious individual aversion to war and the collective preparedness to wage war. This is explained by the fact that the behaviour, the feelings, the thoughts of an independent individual are quite different from those of a man who forms part of a collective whole. Civilised twentieth century man still possesses strong, fierce, and destructive instincts, which have not been sublimated, or only partly so, and which break loose as soon as the community to which he belongs feels itself threatened by danger. The unconscious desire to give rein to the primitive instinct not only without punishment but even with reward, furthers in a great measure the preparedness for war. It should be realised that the fighting-instinct, if well directed, gives energy for much that is good and beautiful. But the same instinct may create chaos if it breaks loose from all restraint, making use of the greatest discoveries of the human intellect.

2. It is appalling to see how little the peoples are alive to reality. The popular ideas of war as they find expression in full-dress uniforms, military display, &c., are no longer in keeping with the realities of war itself. The apathy, with regard to the actions and intrigues of the international traffic in arms is surprising to anyone who realises the dangers into which this traffic threatens to lead them. It should be realised that it is foolish to suffer certain groups of persons to derive personal profit from the death of millions of men. We come to you with the urgent advice to arouse the nations to the realisation of fact and the sense of collective self-preservation, these powerful instincts being the strongest allies for the elimination of war. The heightening of the moral and religious sense in your people tends to the same end.

3. From the utterances of well-known statesmen it has repeatedly been evident that many of them have conceptions of war that are identical with those of the average man. Arguments such as "War is the Supreme Court of Appeal" and "War is the necessary outcome of Darwin's theory" are erroneous and dangerous, in view of the realities of modern warfare. They camouflage a primitive craving for power and are meant to stimulate the preparedness for war among the speaker's countrymen. The suggestive force of speeches made by leading statesmen is enormous and may be dangerous. The warlike spirit, so easily aroused by the cry that the country is in danger, is not to be bridled, as was evident in 1914. Peoples, as well as individuals, under the influence of suggestions like these, may become neurotic. They may be carried away by hallucinations and delusions, thus involving themselves in adventures perilous to their own and other nations' safety.

We psychiatrists declare that our science is sufficiently advanced for us to distinguish between real, pretended, and unconscious motives, even in statesmen. The desire to disguise national militarism by continual talk about peace will not protect political leaders from the judgment of history. The secret promoters of militarism are responsible for the boundless misery which a new war is sure to bring.

International organisation is now sufficiently advanced to enable statesmen to prevent war by concerted action. Protestation of peace and the desire for peace, however sincere, do not guarantee the self-denying spirit necessary for the maintenance of peace, even at the cost of national sacrifice. If any statesmen should think that the apparatus to ensure peace is, as yet, insufficiently organised, we advise them to devote to this purpose as much energy and as much money as is now being expended on the armaments of the various countries.

We cannot close without expressing our admiration of those statesmen who show by their actions that their culture and morality are so far advanced that they can lead peoples to a strong organisation of peace. In our opinion they alone are truly qualified to act as the leaders of nations.

We have the honour to be, Sir,

Your obedient servants,

ADAM, G. H.
ARCHDALE, M. A.
ASHBY, W. R.
ATKIN, I.
BARHAM, G. F.
BAUGH, L. D. H.
BOLTON, J. SHAW.
BROWN, W.
CALDICOTT, C. H.
CANNON, A. T.
CASSON, ELISABETH.
CRICHTON-MILLER, H.
CROW, NORA A.
DAVIES-JONES, C. W. S.
EWEN, J. H.
FINIEFS, L. A.
FISHER, J. J.
FOX, J. T.
FRANKLIN, MARJORIE E.
GARROD, MARJORIE.
GEMMELL, D. T.
GLAISTER, J. N.
GRAVES, KATHLEEN A. H.
GRAVES, T. C.
HAMILTON, J. G.
HARDCASTLE, D. N.
HILLS, H. W.
HORTON, W. W.
KIMBER, W. J. T.
LADELL, R. G. M.
LEWIS, J. B. S.
LOWENFELD, MARGARET.
MACAULAY, D. I. O.
MCCOWAN, M. L. M.
MCCOWAN, P. K.
MARTIN, F. R.
MENZIES, W. F.
MILLER, E.
MOLONY, C. B.
MORAN, P.
NICOLE, J. E.
NORMAN, H. J.
ODLUM, DORIS M.
O'FLAHERTY, C.
PATERSON, A. S.
PERK, D.
PHILLIPS, N. R.
READ, C. STANFORD.
RICKMAN, J.
ROBERTSON, G. D.
RUDOLF, G. DE M.
RUTHERFORD, H. R. C.
SCORESBY-JACKSON, MARGARET.
SHAW, W. S. JAGOE.
SKOTTOWE, I.
STRÖM-OLSEN, R.
STUNGO, E.
WATERHOUSE, A. T.
WATSON, H. F.
WHITE, E. BARTON.
WHITWELL, J. R.
WILKINSON, H. B.
WRIGHT, M. B.

POST-GRADUATE LECTURES

Our last two issues have contained summaries of lectures delivered at the autumn post-graduate courses in London, or extracts from them. This week we publish abstracts of two lectures given at Charing Cross Hospital by members of the honorary staff.

THE CHRONIC ABDOMINAL INVALID

(MR. C. JENNINGS MARSHALL)

OF all chronic illnesses there can surely be none that offers such a series of diagnostic anxieties in the first place, and therapeutic problems in the second, as does Glénard's disease. The first care is always to see that no organic disease has intruded into this maze of functional symptomatology—itself so characteristic and easily recognisable, but nevertheless treacherous in its mimicry of organic lesions.

DIAGNOSIS

There is a mixture of general and local manifestations—always a suggestive point. Vague pains in head, back and limbs, lassitude, and vasomotor symptoms such as flushing, throbbings, palpitation, dyspnœa, are combined with flatulence, vague indigestion, general or local abdominal discomfort, constipation, and symptoms mimicking any of the diseases of the stomach, duodenum, cæcum, appendix, kidney, liver, or gall-bladder. The kypholordotic stance, with protruberant lower abdomen and fixed upper recti, is characteristic; the general suggestion of atony is belied by the readiness with which the musculature goes into rigidity on palpation. Physical signs may indicate a low position of one or many viscera, and confirmation is obtained radiographically. Local spastic contractions of gut are often felt.

Differential diagnosis clearly must provide against an almost inclusive abdominal index; in the main we fear most an alimentary cancer; most of us probably will recollect a case or so of overlooked carcinoma coli labelled enteroptosis on the strength of a negative barium enema and a radiogram of a transverse colon near the pouch of Douglas. (I wonder how many thousands are wearing belts for the same reason.) Radiography has nowadays reached a very high pitch of accuracy in the hands of the expert; but it has not attained 100 per cent., and there is a small proportion of cases, already perplexing clinically, that become confusion worse confounded with an equivocal X ray appearance. Radiography is done an undeserved wrong when infallibility is claimed for it, this in particular referring to the ability to *exclude* disease. There is fortunately for our peace of mind the extremely simple fæces test for occult blood—a persistently negative finding is of value, three or four negatives practically excluding an alimentary carcinoma.

Extensive investigations on the whole are harmful, they suggest and "fix" symptoms; often, however, it is necessary to perform one or more of the quadruple radiographic "overhaul"—barium meal, barium enema, cholecystography, and Uroselectan urinary investigation. These will establish the diagnosis in a large proportion of chronic abdominal lesions—peptic ulcer, gall-stones, diverticulitis, alimentary cancer and other obstructions, and gross renal and ureteric disease, besides letting us have a very useful peep at the spine for carious or aneurysmal erosion, for spondylitis or carcinomatous deposit, or to note that frequent cause of symptoms, glandular calcification.

The proper analysis of cases of Glénard's disease needs leisure, detachment, and freedom to let the patient "have her head"; for it is essential to arrive at a more accurate conclusion than enteroptosis.

PATHOGENESIS

The subject has been dealt with exhaustively and extensively, both before and after Glénard's voluminous treatment in the last decades of the past century. The sum of achievement is that the pathology has been completely established and then just as completely demolished a dozen times. In general the chief thing is the recognition that its beginnings are not in the abdomen; exploded are such explanations as dropping of stomach and other viscera, mechanical interference by bands and kinks, "hepatism," parietal weakness, diaphragmatic fixation, and (one mentions it with trepidation) constipation. The latter in particular needs special reference; for poisoning by delayed fæces is a theory so universally accepted, so eternally preached day in and day out by a most motley series of interests—e.g., the paraffin kings, the pillmakers, the wholemeal bakers, the fruit merchants, and the syringe manufacturers—that it needs courage to point out, a fact of particular importance with regard to Glénard's disease, that constipation is a very versatile producer of symptoms but it is practically negligible as a cause of disease. The subject is controversial, but I cite merely two facts—the complete and absolute relief of symptoms with clearance of the bowel and the uniform failure to find toxins in normal fæces.

Some of the features of enteroptosis seem to suggest that allergy may play some part; no doubt there are often food idiosyncrasies in association with the disease, but this is probably accidental and not inherent. Many facts point to the neurogenous nature—the spastic type of gut manifestation in which the colon may be felt contracted as it is seen under spinal analgesia, the features of "mucous colitis," and the radiographic observation of variations in the alimentary canal under emotional changes. Many points are in favour of the "general hypotonus" view; other features are spastic and resistive and ill in accord with this. Certainly the basal lesion is psychical, though perhaps only in the vulnerable hypotonic individual. It may occur in either sex in childhood, where the behaviourist school would see the disease as an ill-conditioned reflex; still more frequently in sexual adolescence and in the early years of matrimonial misfits; and also from uncongenial circumstances and occupations. No one invariable nervous lesion is found—there may be hysteria, obsessions, phobias, and occasionally true neurasthenia—apart from the many aspects of the inferiority complex and mental maladjustments of numerous kinds. Whether the disease abdominally is a general reaction to all kinds of functional disturbances or whether it is associated particularly with one type of nervous constitution is a question which seems best answered by the latter explanation.

TREATMENT

Clearly this disease calls for psychical rather than physical treatment; and it is a condition in which the family practitioner is at great advantage compared with anyone else, both for his special knowledge of circumstances and his facilities for unhurried and

undisturbed ministration. Above all, *these folk should not be allowed to get to hospitals*, this is fatal to the hope of cure or even of amelioration. In the nature of things, cure can rarely be expected; it is not in the power of the practitioner to alter the milieu, undo the matrimonial misfits, or correct the "conditioning" of childhood. For the sex worries of adolescence the customary teaching of hard exercise, sublimation, and cold water is more effective in theory than in practice, as was pointed out by the great Parish Priest. Often it is better to preach the virtues of resignation: taking arms against a sea of troubles does not end them (there are plenty of proverbs to help), and it is the rebellious and resentful mind that suffers. But it must not be suggested to the patient that the defect is mental; this is both insulting and an indication that the doctor does not understand the case and clearly calls for a change of adviser; we must be careful about counselling psychiatry or psycho-analysis. Equally destructive of confidence is any tendency to pooh-pooh the abdominal manifestations; the attitude to take is that all the patients' sufferings must be attended to and relieved although there is nothing progressive or lethal present.

Belts are prescribed for this condition for the purpose of supporting the abdominal muscles, and of keeping the viscera up. It is readily demonstrated radiographically that almost all belts press the bowels farther and more firmly into the pelvis—admittedly the stomach is often kept up, but this does not matter anyway—but it is often found they give relief. The symptom relieved is the backache, and the belt is acting as a sacro-iliac brace, which is a better prescription. Mainly however the belt is a mental support. The prospect of relief from a belt should be tried out by the experimental use of a very firm binder round hips and abdomen with the hips well raised during application. Like arch supports for the feet, the belt induces further muscular atrophy and effectively prevents any recovery of tonus. The logical alternative has been and is urged by Goldthwait and his school; but if it is obvious that this aspect of the case should be treated by exercises, it is equally obvious that the tired patient must start at small things, never doing enough to exhaust. The ordinary bedroom "on-the-back legs raise" type of gymnastic is suitable and universally applicable.

Surgery has no place in the treatment of the disease: I am aware that the stomach, liver, kidney, and colon stitchers, the appendicectomists, and the adhesion-dividers still claim results; they well can, for there is almost always improvement for six months or so—and then it is time to do something fresh. Only urgent and imperative surgery should be done, but there is one exception to be made to this rule; the constipation of the disease is frequently accompanied by piles or fissure, and it is certainly necessary to break the vicious circle constipation—painful defæcation—more constipation—severer pain. Constipation must be treated as it produces symptoms; carefully adjusted dosage of paraffin is most useful, but often the paraffin is passed unmixed with fæces, and such cases need a gentle regular aperient. (There are many elegant preparations; pills of the aloes, strychnine, and belladonna type, or the homely senna pod, will be found perfectly effective and easily regulated.) Many cases become enema-addicts, often incurably, so that leaving-off causes great distress; the "colon laundry," as the Americans call it, is a flourishing vested interest (no novelty however, for it finds a place in Indian medicine ages B.C.) which apparently pleases a lot of patients, and we had best leave it at that. (This is not to say that lavage has *no* uses, but certainly that it should become a fixed habit.)

Flatulence is a common and distressing symptom, it can be dealt with by the homely peppermint water and baking soda; and also prevented by avoidance of excess carbohydrate and of rich meat in the *diet*. With regard to the latter, most of the patients are under-nourished and are benefited by plenty of butter and cream. While the popular idea that regularity of meals is essential to health is a ridiculous myth, there is no doubt that regularity of meals for these patients is excellent both as an article of faith—"an act whereby they may be saved"—and also as a means of getting them to eat more. With all deference to the Great Roughage Creed, this fraction of the food is most distressing to the enteroptotic and all fruit with skins, pips, fibres must be avoided. A very important point is that plenty of fluid must be taken both during and between meals (fluid with meals causes not the slightest harm despite the usual belief). Some cases need increased *rest* both before and after meals. (Yet one of the most striking features of the disease is the fact that when urgency drives, the patients prove capable of exertion, both mental and physical, over long periods of time, only, when the emergency has passed, to relapse completely.)

There is one point over which I end in a query. Some patients, in whom the symptoms have become "fixed" by over-treatment, are invalids to the end. But what happens ultimately to the average case? Only the general practitioner is able to tell us that; but I suspect that age brings a cure. Does the Olympic perspective and serenity of mellow years indeed smooth out the worries and perplexities? I should like to know.

PAIN AS A NEUROLOGICAL SYMPTOM AND ITS TREATMENT

(DR. H. A. DUNLOP)

SPECIAL attention is given to the position and character of the pain and its relation to bodily acts, such as movement or coughing. Pain may be due to stimulation of any part of the pathway which, beginning at the periphery and decussating in the neighbourhood of the central canal of the cord, is gathered into the spinothalamic tract and so transmitted to the thalamus. It is believed that the thalamus acts not only as a relaying station for the cortex cerebri, but also in virtue of its mesial and anterior nuclei—the so-called essential organ of the thalamus—enables protopathic sensation, including pain, to enter consciousness. Isolation of the thalamus may cause pain by release from the "damping" influence of the cortex. We must, however, beware of geographical concepts of consciousness. Pain may also be psychogenic; the mechanism of this variety is obscure but is bound up with memory and repression. Psychogenic pain is diagnosed by its unusual distribution, is apt to be "laid on with a shovel," and is unaccompanied by signs of organic disease; a talk with the patient will often reveal the discords and fears of his mind.

Apart from psychogenic pain, the following clinical groups are noted:—

1. *The neuralgias.*—(*a*) Trigeminal neuralgia is diagnosed by the type and distribution of the pain

which involves the territory of one or more divisions of the trigeminal nerve, usually the mandibular. The severity varies from mildness to agony. The pain is twofold: dull and continuous, and sharp and piercing. The tender spots of Valleix are found over the points where the branches of the nerve become superficial. If the third division is affected, there is unilateral furring of the tongue. The corneal reflex is normal. The skin is left tender after a paroxysm, during which reflex lacrymation, salivation, and spasm of the face (tic douloureux) may occur. Referred pain from the teeth must be excluded, but there is no need to sacrifice normal teeth. Analgesics are prescribed, such as aspirin and phenacetin Gelsemium is useful. It should be borne in mind that amidopyrin carries a definite risk of producing agranulocytosis, and should therefore be reserved only for severe cases of trigeminal neuralgia.

Injection of the Gasserian ganglion usually gives relief for a year or two. In some cases operation needs consideration.

(*b*) Postherpetic neuralgia may be severe in old people. The scars of herpes zoster are found. The usual analgesics are tried. Massage aggravates the pain. X irradiation is of value in some cases. In a very old subject, opium may be justifiably prescribed. The pain of herpes prior to the eruption may cause great diagnostic difficulty and should always be borne in mind in cases of unexplained pain.

2. *Neuritis.*—I shall say nothing of polyneuritis, but confine my remarks to interstitial neuritis as exemplified by true sciatica. In this condition there is a slight general wasting of the limb; there may be fibrillation of the calf muscles. The ankle-jerk is diminished or lost, but the knee-jerk is brisk. Lasègue's sign is present. The nerve trunk is tender because the inflammation involves the nervi nervorum. The pain extends from hip to heel, and antecedent lumbago is the rule. Always do a rectal examination in a case of sciatica and examine the spine and hip-joint, X raying them if necessary. Examine the breasts for cancer.

In the treatment, in addition to counter-irritation, rest, and analgesics, we must mention subcutaneous oxygen injection—this is useful and for the most part safe, although I believe fatalities have occurred from air embolism. In a truncular sciatica, injection of physiological saline in the region of the nerve trunk is of value; while in a radiculitis epidural injection of saline with novocain and manipulation of the spine may help.

3. *Root pains* are referred to a segmental cutaneous area. They are aggravated by sneezing and coughing, which raise the pressure of the cerebro-spinal fluid. A patient recently with a root pain in the territory of the second lumbar segment (upper part of front of thigh) said her limb "went mad" with the pain. Root pains are recognised by the following: (*a*) there may be blunting of sensation in their distribution (anæsthesia dolorosa); (*b*) root palsies may occur—for example, wasting of an intercostal space, or loss of power in a group of limb muscles; (*c*) there may be signs of compression of the motor and sensory tracts in the cord and alteration in the reflexes. We look for signs of caries, growth, aneurysm, and lues. The cerebro-spinal fluid may show an increase in albumin. In women the breasts, in men the prostate should be examined for signs of cancer. Primary growths may be operable. Secondary deposits are best treated by deep X ray therapy; morphia should not be too long withheld but supplemented by aspirin, &c. In a few cases chordotomy is justifiable; either the inferior sensory decussation may be divided along a few segments or the spino-thalamic tract severed. Remember that spondylitis deformans may cause root symptoms.

4. *Lightning pains* vary greatly in intensity. They occur in bouts and may be momentary single pains, or follow each other like machine-gun fire. The bout lasts up to a few days or weeks. The site varies from day to day, or even from moment to moment. Cases with lightning pains frequently have fixed pains, such as girdle pains, as well. Lightning pains occur in tabes dorsalis and in subacute combined degeneration of the spinal cord. In the latter condition, paræsthesiæ are often more troublesome than pain. In tabes, mercury and potassium iodide should be given and later a course of neoarsphenamine (N.A.B.); it must be remembered that this last may aggravate the pains for a time. Salvarsanised serum is apt to aggravate the pain. The usual analgesics should be tried, but the use of morphia is generally inadvisable, because of habit-formation. In subacute combined degeneration, intensive liver treatment is of value.

5. *Central pain* is best exemplified by the thalamic syndrome of Dejerine and Roussy. In this there are spontaneous movements of the contralateral side to the lesion, varying in type—tremor, chorea, or athetosis; dissociated hemianæsthesia; and sometimes constant pain. Unpleasant stimuli may cause intense distress; less commonly, agreeable stimuli excite unusual pleasure. In practice the pain of hemiplegia dolorosa of this type is extremely intractable; whereas, the arthritic joint pains of a hemiplegic respond to the ordinary remedies. Central pain, the source of which is the spinal cord, occurs in some cases of syringomyelia.

6. *Headache.*—All I shall say about this is that if we use the ophthalmoscope in all cases of headache we shall escape many diagnostic humiliations.

7. *Pain in the back* occurs in certain cases of meningitis; the theca is supplied by the nerves of recurrent sensibility. In some cases of acute anterior poliomyelitis in the preparalytic stage active flexion of the spine is intolerable. This may be due to the painful state of the back muscles or of the meninges. Intense muscular pain may occur in the abdomen in this disease mimicking appendicitis or in the limbs simulating osteomyelitis.

8. Lastly, *aching in the limbs* may occur in conditions of muscular rigidity, notably paralysis agitans.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—The following all-day courses are to be given: gynæcology at the Chelsea Hospital for Women (Oct. 21st to Nov. 2nd); neurology at the West End Hospital for Nervous Diseases (Oct. 21st to 26th); chest diseases at Victoria Park Hospital (Oct. 28th to Nov. 2nd); urology at St. Peter's Hospital (Nov. 4th to 16th); medicine, surgery, and gynæcology at the Royal Waterloo Hospital (Nov. 11th to 23rd). Week-end courses will also be given as follows: physical medicine at the St. John Clinic and Institute of Physical Medicine (Oct. 26th and 27th); clinical surgery at the Royal Albert Dock Hospital (Nov. 2nd and 3rd); gynæcology at the Samaritan Hospital (Nov. 16th and 17th). In the series of lectures on modern gynæcology held at the Medical Society of London Dr. P. M. F. Bishop will speak on hormone therapy in gynæcology on Oct. 31st, and Dr. Norman Haire on practical contraception on Nov. 7th. Courses and lectures are open only to members and associates of the fellowship. The arrangements for this week will be found in our Medical Diary. Further information may be had from the secretary of the Fellowship, 1, Wimpole-street, London, W. 1.

OPENING OF THE MEDICAL SCHOOLS

On Oct. 11th Sir Walter Langdon-Brown spoke to the medical students of the University of Birmingham at the opening of their winter session. The following is part of his address.

FEAR AND PAIN

By Sir Walter Langdon-Brown, M.D., F.R.C.P.
EMERITUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE

I WANT, if I can, to point out certain reasons, partly based indeed upon laboratory investigations, why recognition of the patient's individuality positively influences the results of treatment.

It always strikes me as curious that the most materialistic age of medicine—the end of the nineteenth century—was the most sceptical as to the effect of drugs. The discovery of hormones and vitamins did much to overcome this, for if the body was dependent on such chemical substances, it was reasonable to conclude that it would be influenced by other chemical agents. If the body can be affected by a fraction of a milligramme of a hormone or vitamin, it no longer seemed absurd to expect a dose of 5 grains of some drug to do so. But recent work has thrown an interesting new light on the mode of action of drugs which is germane to my thesis. We have long been familiar with the fact that a nervous stimulus can liberate a chemical substance from a gland; we now know, largely because of the work of Loewi and of Sir Henry Dale, that all nervous stimuli act by liberating a chemical substance, either acetylcholine or adrenaline, at their terminals. Moreover it has been shown that the substance, whatever it may be, on which those terminals act can be made either more receptive or non-receptive by drugs. It seems to me that the pharmacology of the future will have to interest itself more and more in the natural history of these receptive substances. All the time new facts are accumulating along these lines. Thus we know that thyroxin and adrenaline may be poured out in response to an emotional state, and Zondek maintains that barbiturates, for instance, may so alter the surface tension of a cell as to bar the way to the admission of thyroxin. Norman Myers has shown also that certain drugs can bar the way to the admission of bacterial toxins. Clearly a large field for research is opening out before our eyes.

Now we may assert that the two things which bring a patient to the doctor are fear and pain. These may coexist in very varying proportions. The unknown is a very potent factor in exciting fear. It is extraordinary to see the way in which a definite diagnosis, even if not an entirely favourable one, may relieve the patient's mind. Pain, even severe pain, may not be accompanied by fear if the cause is known. But under certain conditions pain may be accompanied by a sense of impending dissolution, which excites the most distressing fears, the "angor animi" of the ancient writers. This is not confined to dangerous conditions like angina pectoris, it may occur in the so-called vaso-vagal attacks. A somewhat similar state is sometimes evoked even by an overdose of insulin.

What is the genesis of fear? Fear is the exaggeration and sometimes the perversion of that alertness to the presence of danger which is such a valuable defensive mechanism. They are both expressed through the same agency—the sympathetic nervous system, which mobilises the body for either fight or flight. Fright may accompany either of these responses, or may be the only response. Fear may be detached from its external motor response, but the internal manifestations may continue. Fear, whether of magic, evil spirits or the dark, panic fear dominated primitive man, and whenever our resistance is lowered by disease, by shock or by psychic conflict, we betray our ancestry, and that strange primitive being which lurks in the unconscious mind of us all peeps out. Every patient, whether he is clearly nervous or bluffs it out, comes to us in a state of fear. The degree of that fear will naturally vary greatly with the individual. The brave man dies but once, it is said, but so does the unimaginative one! Doctors notoriously make bad patients, because their imagination is aroused by the knowledge of so many possible complications and consequences. But I am profoundly sorry for the neurotic; he dies many deaths.

It is clear from what I said earlier that the activation of the sympathetic through fear must modify the response of the patient to the action of the drugs you give. Clearly it is the duty of the doctor to allay fear as much as possible; even more clearly he must avoid exciting fear to the best of his ability. He must always remember that the patient is more receptive to an unfavourable than to a favourable suggestion as to his health. If he fails in these respects, he will interfere with the success of his own treatment and cause unnecessary suffering.

And now as to pain. Physiologically speaking, what are the characteristic features of the transmission of pain? Other sensations have their special receptive end-organs, which are very responsive to their own particular sensation, and have a high discriminative capacity. But sufficiently strong stimulation of any sensory nerve will cause pain and naked nerve-endings only appear to be able to carry painful sensations. The sensation of pain is not so easily elicited but once it is aroused it is explosive in character and prolonged. To illustrate this from a familiar fact. At the right temperature water will give merely a pleasant sensation of warmth, but if you put your hand in water that is just too hot, the painful sensation comes perceptibly later than that of warmth. You may be able to bear the immersion of the hand, but if you increase the stimulated area by plunging in the whole arm, the number of painful impressions will mount up unbearably. Moreover, the pain will persist after you have withdrawn your arm. As we know, these painful sensations pass by their own special tract in the spinal cord, and at a special rate. They arrive at the thalamus which is the older, more primitive receptive structure than the sensory cortex, which enables attention to be concentrated on any part of the body that is stimulated. The sensations received there are also brought into relation with other sensory processes, past and present. The sensory cortex in fact contributes towards a control over feelings. It is by means of this cortical control over attention that a wounded soldier may feel no pain during the excitement of battle, or the hysterical patient experience nothing from the prick of a pin.

That pain, like fear, is a defensive mechanism is obvious. Indeed it is one of the highest value. I remember reading a tale when I was a child of a woodcutter who was promised by a fairy godmother

that one wish should be fulfilled. Smarting from a recent wound from his axe, he wished that he should not feel pain. In a short time he had cut and burnt himself so severely that he died. I always imagine that this story must have been based on a case of syringomyelia. Years ago a philosophic surgeon, James Hilton, wrote a medical classic entitled "Rest and Pain," stressing the value of pain as ensuring rest. The late Sir James Mackenzie also pointed out the value of cardiac pain in preventing over-exertion for a damaged heart. But unfortunately pain, as I have already said, may persist after its value as a warning signal is past. Pain then becomes a portent of a distressing kind.

Both fear and pain present difficulties to the doctor which are all the greater because there is no objective standard by which to measure them. Dilatation of the pupil, acceleration of the pulse, and even the galvano-psychic reflex are not really adequate to do so. The personal factor is enormous. Lombroso maintained that habitual criminals, particularly those who are addicted to crimes of great violence and brutality, have a marked degree of indifference to pain in themselves. In this matter extremes meet, for highly sensitive mystics and martyrs may in their state of spiritual exaltation show a similar indifference to pain. H. G. Wells in "The Research Magnificent" has a pertinent observation on this point. He makes one of his characters remark: "We exaggerate the range of pain as if it were limitless. We think . . . that it passes into agony and so beyond endurance to destruction. It probably does nothing of the kind. . . . The recorded behaviour of martyrs or the self-torture of Hindoo ascetics, of the defiance of Red Indian prisoners; . . . are they really horrible at all? Is it possible that these charred and slashed and splintered persons, these Indians hanging from hooks, have had glimpses through great windows that were worth the price they paid for them?"

Here we touch the fringe of a psychological mystery. It may be that to-day we tend to under-value the spiritual exaltation that may accompany pain, as much as it seems to us to have been over-valued in the past. A distinguished colleague of mine, Prof. C. E. Raven, has put on record a terribly poignant account of his sufferings from a painful accident but he bears witness to the extraordinary exaltation which accompanied it. But I think he is of the stuff of which martyrs were made and I doubt whether to-day many of us would submit to torture over the theological differences between "homoseion" and "homoioseion" as many did in the past with apparent gladness. It may well be that analgesics and anæsthetics have, by abolishing so much pain, made us more sensitive to what remains. To most of us the sufferings endured in the past seem frankly intolerable. But I note a tendency of some modern moralists, such as Hugh Walpole and Cowper Powys, to dwell on the psychological concomitants of pain with undisguised gusto. I must say I do not like that attitude; the frontiers of sadism are soon crossed.

For despite all that poets and moralists have written, and all that martyrs and mystics have endured, pain appears to the medical man to be an evil. He sees many more characters deteriorated than elevated by prolonged pain. I have read with deep sympathy the graphic and courageous account by a surgical friend of his unbearable sufferings from the agonies of thrombarteritis obliterans, but I note that it was when the pain was relieved by amputation that he was able to acquire a gracious and philosophical calm. Indeed Schopenhauer rated the cessation of pain as one of the few positive pleasures in this world. It may well be that it is just because I have experienced singularly little pain in my life that I regard it as an evil. But it is one of the curious facts about pain that it is usually speedily forgotten, which hardly argues that it is a good thing. Anyhow we are called upon to relieve it, and relieve it we must if we can. It is not for us of all people to argue as to its possible benefits.

And here we are up against another difficulty. Hippocrates, the father of medicine, said "of simultaneous pain in two places, the lesser is obliterated by the greater." Which is greater, physical or mental pain? Few would doubt that the latter is worse. Certainly medical men are constantly seeing instances where patients seek a physical pain as the relief to mental pain. For the former can be talked about and will excite sympathy, the latter they prefer to bury in their own bosoms. And then comes the magician, offering new lamps for old, new pains for old, and pains that can be talked about. In our work we must be constantly on the watch for these substitute pains and search for the underlying mental or emotional cause. An instance comes to my mind of a young lady in the early twenties who suffered according to her own account from excruciating abdominal pains. But she firmly refused to have the cause of these pains investigated by any modern method. Then her father died and left her well enough off to be independent. She rose from her bed of suffering, quarrelled with her mother, and ran away with the married chauffeur to live happy, if not ever after, at any rate up to date! By concentrating sufficient attention on any part of our anatomy we can develop a pain there, and it is all the easier to have a somatic pain if at the same time the emotional sympathetic nervous system is keyed up. I imagine that the stigmata of saints, if not self-produced, were self-induced in some such way.

Clearly it is psychotherapy and not drugs that are called for in cases of substitute pains. But in the cases of physical pain it is clear that the psychological factor also enters into treatment. To come back to my starting point, it is evident that the state of the emotions can very definitely influence the action of the drugs we employ. And herein we find the scientific explanation of the fact that hope is the best of tonics.

WELFARE OF CRIPPLES AND INVALID CHILDREN.—A conference on this subject is to be held in London on Nov. 7th and 8th by the Invalid Children's Aid Association and the Central Council for the Care of Cripples. After Sir Kingsley Wood, the Minister of Health, has given an opening address on the Thursday morning there is to be a discussion on infectious diseases and their after-effects and on immunisation and other measures that can be taken against them. This will be opened by Sir John Broadbent, Surgeon-Captain S. F. Dudley, Dr. J. Alison Glover, Dr. Matthew Burn, and Dr. W. J. Pearson. Thursday afternoon's meeting will consider the problem of physical handicap in modern life, while the whole of the next day will be devoted to the after-effects of accidents and rehabilitation therefrom. The speakers at Friday's discussions will include Dr. H. C. Cameron, Dr. Elizabeth Casson, Mr. S. A. S. Malkin, Dr. H. E. Moore, and Mr. D. C. Norris. The conference meets at the Drapers' Hall, Throgmorton-street, E.C., and we learn that a certain number of complimentary tickets for the first meeting will be issued to men and women engaged in practice. Application should be made by post to the Invalid Children's Aid Association, 117, Piccadilly, W. 1.

PUBLIC HEALTH

On the State of the Public Health

THE first annual report[1] of the chief medical officer of the Ministry of Health to be issued over the name of Dr. Arthur MacNalty follows its 15 predecessors closely in form and arrangement. The work recorded in it was done under Sir George Newman, to whom graceful tribute is paid by his successor. The first section, which is an innovation, describes the functions and organisation of the Ministry itself. Then follow the essential vital-statistics tables. The birth-rate shows a rise of 0·4 per 1000 over the 1933 figure, which was the lowest on record. Coincident with this there was a fall in the death-rate of 0·5 per 1000. It is noted with justifiable satisfaction that the infant mortality-rate reached the record low figure of 59 per 1000 births. Death-rates for certain areas of County Durham for the years 1930–34 are given, with a summary of the findings of the commission which investigated the allegation that there had been a substantial and progressive deterioration of the public health in these distressed areas. Dr. MacNalty remarks that the evidence contained in this report, evidence which is congruent with much other information available to the medical department, shows that even in the most distressed areas of the country the measures taken by public authorities and the generous efforts of individuals have, so far as the usual indices of health can be trusted, largely held in check the deleterious influences of unemployment and reduced income. At the same time, he adds, the report gives no grounds for complacency. No inquiry can accurately evaluate the grave indirect dangers to health of mind and body which prolonged unemployment involves, and the Ministry is closely watching the position.

GENERAL EPIDEMIOLOGY

The almost complete freedom from small-pox and the lessened incidence of all infectious diseases except scarlet fever and diphtheria are welcome facts. The satisfactory progress made in efforts to produce a bacteria-free vaccine lymph from the chorio-allantoic membrane of chick embryos is recorded. Details are given of five cases of acute nervous disease following vaccination, and it would have been interesting to know the total number of primary vaccinations performed on children of school age and adolescents.

There were 20,000 more cases of scarlet fever than in 1933. Reference is made to the growing realisation that scarlet fever is only one manifestation of the hæmolytic streptococcus, others being tonsillitis and puerperal fever. The question of return cases is discussed; more stress might perhaps be laid on the part played by antitoxin in expediting cure and, by discharge from hospital in the fourth week, in lessening the risks of cross-infection. The public should know that the occurrence of cross-infection or a return case is not evidence of neglect and that discharge of an uncomplicated case in the fourth week is good practice.

Diphtheria incidence was up by over 21,000 cases, the fatality-rate being 5·9 as against 5·5 in 1933. It is pointed out that diphtheria is a personal disease and that wide fluctuations of incidence are to be expected; further, that the rise in the fatality-rate may be due to the inclusion of a smaller number of carriers than in previous years. Here again guidance might be given; there is no uniformity of practice, and as long as cases with no clinical manifestations of the disease are admitted as diphtheria patients to some hospitals and not to others comparative statistics will continue to be valueless. The proved variation in virulence of different types of bacillus is referred to. No definite opinion is expressed on the value of immunisation. The public would appreciate a dispassionate verdict on this, perhaps the most vital public health problem of the day.

Practitioners will read with interest the account of the incidence of leptospirosis (Weil's disease) in those whose work entails contact with water open to contamination by the urine of rats.

MATERNITY AND CHILD WELFARE

The general improvement in the services is reported and tribute is paid to the efforts of public health authorities, practitioners, medical officers, and midwives to reduce the persistently high maternal mortality-rate. A summary of the various steps taken or suggested by the Ministry is given, together with a list of the county boroughs in which conditions are being specially investigated on account of the high average-rate obtaining over a period of years. We would suggest special reference to towns where improvement has been made; nothing is more calculated to discourage an authority than to continue to include it in the "black list" on account of its ten-year average when it has already effected substantial reductions. The value of coöperation between practitioners and the medical officer of health is stressed: without such coöperation no permanent improvement can be expected. The value of reasonable publicity and propaganda is admitted. Reference is made to the unsatisfactory position of the average midwife at the present time and sympathetic mention is made of proposals under consideration for a full-time midwifery service.

TUBERCLE—V.D.—CANCER

There is nothing startling in the section devoted to tuberculosis. The after history of cases, problems of employment, the infection of home contacts, the effect of housing conditions are among the subjects discussed. Appreciative reference is made to improvement in the equipment of dispensaries particularly as regards facilities for X ray examination and to the cordial relations existing between practitioners and tuberculosis officers.

Much of the section on venereal diseases deals with the comparative value of ad-hoc and other types of treatment centre. It appears that the fear that transfer of the centre from a voluntary hospital to a municipal clinic would lessen efficiency has proved groundless; in most cases, indeed, the reverse, shown by an increase in attendances, has been the case. No reference is made to a problem which would appear to require immediate central investigation—viz., the risk run by road transport workers through the development of a new profession, that of the travelling prostitute. Presumably the matter is being investigated.

There is no improvement to record in the incidence of, or mortality from, cancer, although hope is expressed that a peak of mortality will shortly be reached. An extremely valuable table of deaths arranged according to the site of the lesion is given and a statement on the progress of research and on the work of the Radium Commission is made.

[1] H.M. Stationery Office. 3s.

Other sections deal with nutrition, milk-supplies, food standards, food poisoning, and appropriation of hospitals under the Local Government Act—all matters of first-rate importance.

In concluding this brief review we commend to the deliberate study of every medical man and woman Dr. MacNalty's first report. It deals with many controversial matters and will be quoted widely in the lay press. On some of these an authoritative pronouncement from the chief medical officer would be welcomed, not only by the profession but by the public. The reputation of the Ministry of Health stands high with the people of this country, and the report might perhaps go further in tendering advice about matters on which there is now much misguided and contradictory publicity.

Pneumonia and the M.O.H.

Acute primary pneumonia, together with acute influenzal pneumonia, became compulsorily notifiable by medical practitioners in 1919. A memorandum which was issued at the time by the Local Government Board has now been reissued in a revised form by the Ministry of Health. It was never anticipated that in the present state of our knowledge the mere notification of pneumonia and the action consequent thereon would result in any great immediate reduction in the total incidence of the disease, but it was thought that the public might thereby be awakened to a sense of the gravity of the malady. It was thought, too, that notification might supply valuable statistical information as to the distribution of pneumonia, and contribute in some measure to a reduction in the mortality from it, by bringing to light those cases in which the local authority could help by providing nursing or other assistance or by arranging for institutional treatment.

It may be frankly stated that on the experience of the last 15 years there appears to be little evidence that the notification of pneumonia serves a useful purpose. The majority of medical officers of health receive the notifications and spend the minimum of time on inquiries. None the less it is still the statutory duty of the medical officer of health, following notification, to "make such inquiries and to take such steps as are necessary or desirable for investigating the source of infection, for preventing the spread of infection and for removing conditions favourable to infection." In practice attention will be more usefully directed to patients notified from the poorer streets and it may be found that skilled nursing is urgently required. Such nursing may be provided in various ways—e.g., by arrangement with a district nursing association or through the poor-law domiciliary service. In any case the nurse works under the instructions of the private practitioner or the district medical officer, as the case may be. Since the disturbance of a pneumonia patient involves special risk, great care is taken in selecting cases for treatment in hospital; regard is had to the sanitary condition of the home, the possibility of isolation, and the means and facilities for home nursing and general care. In some cases, however, removal to hospital may be the patient's only hope of recovery.

The pneumonia patient freely disseminates virulent pneumococci by droplets. Persons attending the patient do not appear to be subject to much risk of infection, but it is likely that they may become carriers and pass the infection on to others more susceptible. The patient is therefore isolated so far as is practicable. In a hospital ward the patient's bed should be separated from others by screening. The sputum and the discharges from the nose should be carefully disposed of. Handkerchiefs should be boiled or (if of paper) burnt. Attendants on a pneumonia patient should observe the ordinary precautions necessary in dealing with infectious disease. The memorandum advises prophylactic gargling and gentle douching of the nose, but recommends the use of face-masks only in cases of influenzal pneumonia.

The local authority should provide facilities for the bacteriological examination of sputum and the typing of the organism. There is no evidence that the pneumococcus can survive for long outside the body and special disinfection of bedding or rooms is therefore unnecessary. When visiting a notified patient the opportunity is taken to deal with any obvious defect in sanitation which may be found.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 5TH, 1935

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2464; diphtheria, 1199; enteric fever, 67; acute pneumonia (primary or influenzal), 499; puerperal fever, 37; puerperal pyrexia, 114; cerebro-spinal fever, 11; acute poliomyelitis, 22; acute polio-encephalitis, 3; encephalitis lethargica, 6; relapsing fever, 1 (Widnes); continued fever, 1 (Battersea); dysentery, 23; ophthalmia neonatorum, 102. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 11th was 2803, which included: Scarlet fever, 944; diphtheria, 1119; measles, 23; whooping-cough, 288; puerperal fever, 17 mothers (plus 9 babies); encephalitis lethargica, 268; poliomyelitis, 16. At St. Margaret's Hospital there were 21 babies (plus 9 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 2 (0) from measles, 5 (1) from scarlet fever, 8 (3) from whooping-cough, 25 (1) from diphtheria, 45 (10) from diarrhœa and enteritis under two years, and 25 (0) from influenza. The figures in parentheses are those for London itself.

The only death from enteric fever occurred at Birmingham. Fatal cases of diarrhœa and enteritis were distributed over 25 great towns, the highest number being Hull 4, Nottingham and West Bromwich each 3, no other great town more than 2. Liverpool reported 2 deaths from measles, Manchester 2 deaths from scarlet fever, and Leeds 3 deaths from whooping-cough. Fatal cases of diphtheria occurred in 22 great towns, 2 each being reported from Southampton, Oldham, and Sheffield.

The number of stillbirths notified during the week was 272 (corresponding to a rate of 45 per 1000 total births), including 29 in London.

MANFIELD ORTHOPÆDIC HOSPITAL, NORTHAMPTON. Approved extensions to this hospital will include a new ward for 24 patients, eight single-bed wards for private patients, and more accommodation for the nurses' home. By next spring this institution should have a total of 180 beds; in 1925 it had only 20. The extensions will cost £10,000.

THE HYGIENE OF YOUTH.—A series of lectures on this subject will be given under the joint auspices of the Royal Institute of Public Health and the Institute of Hygiene at 28, Portland-place, on Wednesdays at 3.30 P.M., from Oct. 23rd to Nov. 27th. Dr. Alan Moncrieff will give the first lecture, on the early weeks of life in relation to the health of the adolescent, and the subsequent speakers will be Dr. L. S. T. Burrell (tuberculosis in youth), Dr. Reginald Miller (rheumatism and heart disease in youth), Mr. William Ibbotson (hygiene of breathing, hearing, and speaking), Prof. J. W. H. Eyre (adolescence and microbial infections), and Dr. R. Cove-Smith (pitfalls of physical training). The lectures are open to all.

CORRESPONDENCE

THE ATTITUDE OF SURGERY TO HÆMATEMESIS

To the Editor of THE LANCET

SIR,—Mr. Gordon-Taylor concludes his address in your last week's issue with the words ". . . the golden age of gastric surgery will have been attained only when all cases of hæmorrhage from chronic ulcer come to operation within that space of time"—i.e., the first 48 hours. Some latitude may be allowed for a peroration, but the meaning is that all cases of hæmorrhage from chronic ulcer should be operated upon immediately.

Considerable responsibility is incurred by such a statement, and we are entitled to weigh the evidence produced in its support, especially as Mr. Gordon-Taylor gives no statistics of his own results, and contents himself with quoting from only one writer, Finsterer of Vienna. It will be noted that the statement is applied only to chronic ulcers, implying that the differential diagnosis from an acute ulcer can be made, at least with reasonable certainty, within 48 hours, including cases in collapse following hæmorrhage. With regard to the risk to life from ulcer hæmorrhages, Conybeare's figure of 2·5 per cent. mortality is commonly quoted, and there is no doubt that if all cases of hæmorrhage however trivial are included, the case-mortality is very low and is somewhere in this neighbourhood. But in the last decade statistics have gradually pointed to the existence of a serious group which includes nearly all the fatalities. Credit is due to Bulmer as being the first to indicate the existence of such a group when he studied the mortality in cases admitted expressly for hæmatemesis and found a mortality of 10 per cent. in 1927 and 16 per cent. in 1931. The separation of a severe group has been further advanced by the statistics of Aitken at the London Hospital and Lloyd Davies and Nevin at St. Thomas's Hospital. Stated shortly, the latter writers used a criterion of below 20 per cent. of hæmoglobin, and thus separated a group in which the mortality was about 45 per cent., while the mortality of the remaining cases was 6 per cent., although all these had been admitted expressly for hæmatemesis or melæna. It is thus clear that there is a serious group in which there is a very high mortality, while outside this the mortality is low, although the hæmorrhage may be considerable.

Mr. Gordon-Taylor places considerable reliance on the views and statistics of Finsterer. The general outlook of this surgeon may be illustrated by two sentences which are quoted "Any hæmorrhage from an ulcer is almost as urgent as a perforation," "Bleeding from a chronic ulcer is an imperative indication for immediate surgery." Finsterer gives a table of his results of "immediate operation" on cases of hæmorrhage from an ulcer. He states that he only includes cases beginning with a massive hæmorrhage or with melæna with syncopy, more trivial hæmorrhages being excluded. In these circumstances he performed gastrectomy within 48 hours in 39 cases, with one death, a mortality-rate of 2·5 per cent., the only death being in a man over 80 years of age. He concludes his article with the following statement: Performed in suitable surroundings, "operation for acute hæmorrhage gives the same good results as operation for non-bleeding ulcer." Such a statement is manifestly absurd, and a study of Finsterer's original article gives the impression of the same exaggeration throughout. Neither his statements nor his statistics can be safely accepted nor deductions drawn from them.

The treatment of hæmorrhage will not be improved by these means. It does not assist to make sweeping statements that all cases of hæmorrhage must be treated surgically or treated medically. What we need to do is to distinguish those cases which should be treated medically, and those which should be treated surgically. May I return to the serious group in which the fatalities occur? It is not easy to give a clinical description of this group, but, as Aitken says, it is not difficult to recognise it clinically and to recognise if an individual case comes within it. Can we go further and decide whether an individual case in this group will live or die under medical treatment? Aitken says that we cannot do so at present, and my experience agrees with this. We must most of us have seen a desperate case recover on which a surgeon was unwilling to operate.

So far as the treatment of severe hæmorrhage is concerned, it is to this group that we need to pay attention. We do not know which cases will recover, and we do not know which should be operated upon and which should be treated medically, and so far as I am aware there are no statistics which are of assistance in comparing the results of medical and surgical treatment. Perhaps it may be possible for surgeons with an extensive experience to find from their records statistics bearing on this group, which can be compared with statistics of medical treatment. In the meantime, in fairness to our patients, we must decide the treatment of each case individually, with an open mind and with the coöperation of medical and surgical acumen.

I am, Sir, yours faithfully,

Devonshire-place, W., Oct. 12th. H. LETHEBY TIDY.

PROTEOLYTIC ENZYMES IN CANCER

To the Editor of THE LANCET

SIR,—In the *Journal* of the Canadian Medical Association for October, 1935 (p. 364), an article entitled "The Study and Treatment of Cancer by Proteolytic Enzymes" by Dr. H. C. Connell appears. In this article reference is made to the fact that the Imperial Cancer Research Fund had been asked by Dr. Connell to investigate experimentally his claim to have discovered a method of killing cancer cells in vivo—potentially a cure for cancer. We have prepared from mouse tumours, in accordance with directions received, the solutions which Dr. Connell calls "ensols" and have tested these "ensols" on the appropriate tumours of mice. In no case has the growth of a tumour been checked or affected in any way. I am, Sir, yours faithfully,

W. E. GYE.

Imperial Cancer Research Fund, Queen-square, London, W.C., Oct. 14th.

PLASTER TECHNIQUE IN TREATMENT OF FRACTURES

To the Editor of THE LANCET

SIR,—I have read with great interest your leading article of Sept. 28th on plaster-of-Paris, and I trust you will allow me to make a few comments, which are thus belated, because I was in Vienna when the article appeared. While every orthopædic surgeon will agree with the main points of the article, yet I feel anxious lest the impression it will make on the rank and file of the profession may be an unfortunate

one; so that, like many another piece of propaganda, it may precipitate the very evil which it is intended to prevent. Thus:

1. Although the article states that good plaster work "still remains an exacting art, demanding not only some experience and natural aptitude . . ." yet the implication is that nearly all members of the profession ought to dabble in this art, disregarding the fact, which many of us know too well, that in the hands of the inexpert plaster often has disastrous effects—far more disastrous than those of stock-splints badly applied.

2. Another implication is that plaster should *replace all other types* of splint. Now for such conditions as wrist-drop the light vulcanite splint is incomparably better; while there is agreement among the majority of orthopædic surgeons that plaster-of-Paris should only play a minor part in the treatment of scoliosis and many other spine conditions.

3. As regards technique: (*a*) only the advantages and none of the drawbacks of the *proprietary bandage* (celluloid-plaster) are referred to. It is noteworthy that Böhler uses only the condemned "hand-made" bandage; (*b*) the suggestion is made that the *padded plaster* has no place in surgery, but the present writer is convinced from a study in orthopædic clinics all over the world, as well as from long practical experience, that such a statement shows an utter lack of conception of the possibilities of plaster-of-Paris. It is the badly padded plaster that should be condemned; the unpadded is equally detrimental in an unsuitable case.

4. Finally, in regard to *Böhler's contribution* to the solution of the fracture problem, I feel convinced from two weeks' recent study in his clinic that the profession will be misled if it is induced to believe that any widespread improvement in plaster technique will result in a corresponding improvement in the results of fracture treatment, however earnestly such progress may be desired by the profession and by the public. Böhler's plaster technique has serious rivals in U.S.A., France, and Italy (and let us not forget our own war-surgeons), but the organisation of his clinic has certain other features, which I feel convinced play at least equal parts in producing his admirable results. These are: (*a*) A team with a very *experienced*, as well as brilliant, surgeon at the apex of the pyramid and also fairly senior full-time surgeons carrying out the treatment under his direct supervision—what many British practitioners might characterise as a "fascist organisation," or a "one-man show." (*b*) A system of *records* and frequent attendances, reinforced by the financial weapon of insurance, which secures most detailed and continuous *supervision* of each patient until he is able to resume his place in the working community. (*c*) The provision of *sufficient beds* to allow a short period of *in-patient* treatment for every injury of joint, tendon, or tendon-sheath, even in the upper limb; also periods of from two to six months for all leg and thigh fractures. Pott's fractures with any swelling are given in-patient treatment with the limb raised and no plaster till the skin and circulation are recovered. (*d*) Finally, an expenditure on *X rays*, which would be regarded as grossly extravagant by most British voluntary hospital boards. It is this frequent and regular control by X rays of the position of the fragments which results in the early recognition of recurrent displacement, while there is still time to correct it; for even the unpadded plaster allows slipping in certain cases.

The limits of a letter do not allow for any thorough review of this wide and most important subject, but I trust that your courtesy in allowing me to trespass on your space to this extent may induce many of your readers to give careful thought to the above points, which are only some of the many deserving consideration.

I am, Sir, yours faithfully,

M. FORRESTER-BROWN.

Queen-square, Bath, Oct. 13th.

ORIGIN OF BOILS

To the Editor of THE LANCET

SIR,—Dr. Lockhart raises a very interesting question. After prolonged observation I should say that boils on the neck are almost entirely confined to the male, whereas there is a peculiar form of superficial eczematous dermatitis of the nape of the neck almost entirely confined to women. Boils on the neck may be associated with acne of that region or may occur independently. It is perhaps a curious fact that whereas acne is common in both sexes it is rarely found on the neck in women. If one studies the distribution of the hair on the neck it is found that the hair, where it grows low down, is apt to do so in two parallel columns, one on either side of the middle line, and these columns are much more frequently the sites of boils than the middle line. On the other hand, the "nape eczema" of women more frequently affects the middle line.

It would occupy too much of your space to go into the causation of boils from the constitutional side and I therefore confine myself to the local, especially as this is the aspect of Dr. Lockhart's inquiry. I agree that the use of the clippers is associated in some cases with the appearance of folliculitis and boils, but I offer a different explanation. It will be noticed, if attention is paid to the point, that in men who get boils on the neck the hair is coarse and grows low on the neck. Any habitually shaven man knows how uncomfortable his face feels on the pillow after being unshaven for three or four days. The short stiff hair is driven into the skin and worries the follicle. As the hair grows long enough to become flexible this irritation ceases. In the daytime men wear stiff or close-fitting collars which are liable to cause this follicular irritation where the hair is clipped short. They should therefore either allow their neck hair to grow long or shave it with a safety razor daily. For some years now women have had the clippers applied to their necks, yet one rarely if ever sees boils on their necks. I suggest that this is due to the fact that since the clipping has been customary the clothing of the neck has also been less close and rigid.

There remains the "nape eczema" of women. Some years ago I suggested that this might be due to the wearing of furs round the neck. I am here not alluding to dye dermatitis but to the mechanical irritation by the scrubbing of the neck with worn and broken fur. This would naturally produce an irritative dermatitis of superficial type and I have actually seen it produced on the throat in men by the use of a much worn badger shaving brush.

I should like to make it clear that I do not think that a dirty or infected clipper is a matter of no importance, but merely to point out what are I think the main causes of these diseases.

I am, Sir, yours faithfully,

London, W., Oct. 15th. ARTHUR WHITFIELD.

TREATMENT OF SCABIES

To the Editor of THE LANCET

SIR,—Seeing that Dr. Kingston's excellent article on this subject in THE LANCET of Oct. 12th confirms the experiments which I myself made about 20 years ago, but failed to publish, I feel that I must now support his findings, and congratulate him on drawing attention to the fact that whereas the "sulphur treatment" has been handed down from one text-book to another as a so-called cure for this condition, this is far from being the case as is so commonly thought. The "cure while you wait system," as used in some hospitals, where the patient is given a sulphur bath, thoroughly scrubbed with a nail-brush and sulphur ointment applied, is I am sure doomed to failure. Much may depend upon the efficiency of the scrubbing and thereby opening up the burrows made by the acarus, but it must not be forgotten that if only one of these escapes (and I am convinced that many more than this must do so), and if only one acarus is left behind under the skin, eggs will be produced at the rate of 2 or 3 a day for 14 days. The acarus may lay as many as 50 eggs. These take 14 days to hatch, so that it would take about six weeks before the last eggs are hatched. This surely is the cause of so many recurrences after so-called immediate cures.

My contention is that every case treated should be examined weekly for at least six weeks before one can affirm that a cure has been effected, and yet how seldom is the trouble taken to carry out this routine. In a large hospital, such as a mental hospital, it is practically impossible to eradicate this trouble unless some such routine is adopted.

In support of the findings which Dr. Kingston has recorded I would add that I have found the acarus in a burrow after the patient had had the recognised sulphur bath treatment, followed by daily applications of sulphur ointment for 14 days. I have also found the live acarus in the burrow under the skin of a patient who had had the sulphur bath treatment followed by applications of sulphur ointment twice a week for four weeks, and in many cases after shorter periods of similar treatment. Further, in a wax cell on a slide under a cover-slip I found that the acarus would live for 24 hours immersed in water, 48 hours crawling about over sulphur ointment, and as long as seven days in a cell such as described with nothing else in it.

I am naturally pleased to see that Dr. Kingston has taken the trouble to make somewhat similar investigations and that his results so closely agree with my own. But surely it is time that medical students were taught that the sulphur bath and ointment, as described in most text-books, is not a cure, and that repeated trials and examinations must be made to prevent the relapse and further spread of this condition, which once left unrecognised and improperly dealt with becomes a source of untold trouble in any large institution.

I am, Sir, yours faithfully,

R. EAGER,
Medical Superintendent, The Hospital,
Oct. 15th. Exminster.

GERMICIDAL PROPERTIES OF MERCURY PREPARATIONS

To the Editor of THE LANCET

SIR,—In the annotation entitled Skin Disinfection in your last issue (p. 838) you refer to the well-known fact that the germicidal properties of mercury preparations as determined by different methods vary enormously. We think that the following simple experiments throw a great deal of light on the causes of the discrepancies.

When the carbolic-acid coefficient of mercury preparations is determined, a loopful of the bacterial culture, after contact with a known concentration of the mercury compound, is removed after a known interval of time, and is subcultured into a given quantity of nutrient broth. If no growth subsequently occurs in this broth it has been assumed that the bacteria in the treated culture were killed when the loopful was removed. Usually this assumption is correct, but in the case of mercury preparations the assumption is purely fallacious. The refusal to develop is due to the bacteriostatic action of the accompanying mercury salt carried over with the loopful into the broth. If instead of plain nutrient broth, broth containing 0·2 c.cm. of a sterile 5 per cent. solution of sodium sulphide per 5 c.cm. of broth is employed, an entirely different picture of the facts is obtained. The sulphide inactivates the mercury which is carried over, and the supposedly dead germs are found to be alive and unharmed. The differences between the real and the apparent germicidal properties of a few mercury preparations are seen in the following Table:—

Mercury preparation.	Real carbolic-acid coefficient.	Apparent carbolic coefficient.
Mercuric chloride ..	0·15	800
Mercuric cyanide ..	Less than 0·1	25
Mercuric iodide ..	7	1300

N.B.—The mercuric chloride in the strong solutions that were necessary was dissolved with the help of sodium chloride and the mercuric iodide with the help of potassium iodide. The actual coefficient of mercuric cyanide could not be determined because a 10 per cent. solution (which is actually a supersaturated solution at 18° C.) failed to kill the bacteria after 10 minutes' contact.

We think we can now give a reasonable explanation of the germicidal failures of mercury preparations under clinical conditions. For instance, the Departmental Committee of Maternal Mortality and Morbidity in their final report (1932, p. 113) showed that a 1 in 1000 solution of mercury perchloride did not kill hæmolytic streptococci on the hands nor did it prevent reinfection after a time. From the above table it will be seen that mercury perchloride is actually a much weaker germicide than pure carbolic acid, and a 1 in 1000 solution is a very feeble one bactericidally. When such a solution is applied to the skin, the mercury compound tends to combine slowly with the excretions of the sweat glands to form insoluble compounds, and as the bacteria have not been killed they can subsequently be removed in the living condition. It is only when some soluble uncombined mercury compound is removed with the bacteria that fictitious results are obtained.

The germicidal ineffectiveness of soluble mercury compounds in the presence of pus and blood is too well known to require special comment.

We are, Sir, yours faithfully,

W. C. REYNOLDS,
Hull, Oct. 15th. S. N. H. STOTHART.

PARIS

(FROM OUR OWN CORRESPONDENT)

THE SURGICAL CONGRESS

THE Association Française de Chirurgie held its forty-fourth congress in Paris from Oct. 7th to 12th, these dates being chosen so that it might coincide with the motor show.

In his opening address, Prof. Gaston Michel, of Nancy, courageously faced the dangers threatening the medical profession at the present time, as much from within as from without. He pleaded for scientific probity, and a critical attitude towards "too beautiful statistics" and towards those who

sacrifice truth for the sake of innovation. He rang the changes on a Pauline aphorism by declaring that intelligence, sang-froid, and skill profit nothing without rectitude: "for a surgeon, one of the surest and most durable elements of success is scrupulous honesty and unflagging morality, both from the surgical and the scientific points of view. Without conscience, science is but the ruin of the soul." Another danger, he said, with which surgery is faced to-day is standardisation. During the war teamwork was necessary, and personalities sometimes had to be sacrificed. But the reign of the team can continue only if it permits of the development of the individual; otherwise, personal responsibility, the factor of greatest importance, will decline. Excessive collectivism will cultivate the spirit of the functionary and will destroy the surgeon's initiative.

Turning to more concrete problems, Prof. Michel referred in no uncertain terms to the surgeons who refuse to operate, even in an emergency, without having been paid their fees, or who undertake unnecessary operations. Surgery is becoming more and more democratised; every year the supply of surgeons increasingly exceeds the demand, and quantity is obtained at the cost of quality. The younger generation is in a hurry, whereas surgery requires "an aristocracy of soul," and an education which includes moral as well as intellectual elements. "The phantom of wealth, to be acquired quickly and no matter how, induces many to neglect education in a moral sense. The moral crisis existing in the medical profession to-day is not so much to be traced to individuals as to the milieu of the moment." Prof. Michel would have his ideal surgeon serve a long and hard apprenticeship in biology, physiology, and experimental surgery as well as in anatomy. "One's memory of anatomy is the first factor in the calm, the sang-froid, the confidence, the regularity, and the precise and perfect execution of the surgical act." But this is not all. A classical education is essential to the development of a mature and critical judgment; and it gives great suppleness to the mind.

In Prof. Michel's opinion, vigilance on the part of the medical profession is required at the present time in connexion with the appointment of surgeons to hospitals in small and provincial communities. In university towns such appointments are made under equitable conditions. But in communities of less importance politics are apt to intrude, and laymen are tempted to impose their opinions and personal inclinations on the community so that it does not always get the best qualified applicant for a hospital appointment. It should always be made after an open competition at which the judges should be surgeons, not lay politicians.

Apart from numberless minor communications, there were three subjects to which the congress paid special attention. The first was infarct of the mesentery on which an opening paper (or rather monograph) was communicated by Dr. André Ameline, of Paris, and Dr. Charles Lefebvre, of Toulouse. They find that the condition is probably commoner than has been thought, and that there is no one pathognomonic sign of it. The most important symptom is pain associated with collapse. The second main subject was fracture of the calcaneus, and the principal speakers were Dr. Fernand Paitre and Dr. Marcel Boppe, both of Paris. The invitation of Dr. L. Böhler, of Vienna, by the organisers of the congress to speak on this subject was a happy inspiration; and much of the opening paper was an advocacy of Böhler's operation for this fracture. In fact, Dr. Paitre and Dr. Boppe have come to the conclusion that when a fracture of the calcaneus is articular, and the state of the skin about the tenth day after the accident contra-indicates any incision, Böhler's method of orthopædic reduction should be preferred to any open operative procedure. Böhler's method requires great technical precision and most strict post-operative supervision. Whatever be the treatment given, no final result of articular fractures can be expected in much less than a year.

The third main subject was the technique and physiological consequences of operations on the diaphragm, phrenicectomy excepted. The main report was presented by Dr. Henri Costantini, of Algiers, and Dr. G. Ménégaux, of Paris. Among the distinguished foreigners invited to speak on this subject were Prof. Sauerbruch, of Berlin, and Dr. Harrington, of Rochester, U.S.A.

IRELAND

(FROM OUR OWN CORRESPONDENT)

PUBLIC HEALTH ADMINISTRATION IN DUBLIN

SOME weeks ago the Minister for Local Government and Public Health appointed a tribunal to investigate the question of enlarging the boundaries of the City of Dublin and also the financial relations between the several local authorities in the county of Dublin. The chairman of the tribunal is a distinguished lawyer and his two colleagues are officials in the Minister's Department, one an engineer and the other an expert in accountancy. No member of the tribunal has any medical experience or any qualification for forming an opinion on the many matters concerning public health administration with which the tribunal will have to deal. The council of the Irish Medical Association drew the attention of the Minister to this weakness in the tribunal and asked him to add to its personnel one medical member. The council pointed out that the decisions to be made by the tribunal will affect the administration of public health for many years to come, not only as regards the boundaries of administrative areas, but as regards such special questions as the provision and maintenance of an adequate hospital service, water-supply, housing, and town-planning. While the council did not question the capacity of the several members of the tribunal in their own spheres, none of them had the training or experience to fit them to form a useful opinion on such topics. To this suggestion the Minister has found himself unable to accede. There is no doubt that the report of the tribunal will suffer from absence of a member who could give sufficient weight to considerations of public health.

The most interesting evidence yet submitted to the tribunal has been that of Mr. M. Russell, F.R.C.S.I., superintendent medical officer of health for the city of Dublin, who made a clear statement of the present public administration and of the problems which have to be solved in Dublin. He stated that the Census of 1926 showed that there were 25,789 families living in one-room tenements in Dublin, of which 14,725 were of three persons or upwards. There are 2000 cellars in the city occupied as dwellings. The housing problem was most urgent and should be dealt with as rapidly as possible. To meet the needs of the population 2000 houses would have to be built each year, and at present not more than 1000 a year were being built. There is difficulty in finding suitable housing accommodation for those

turned out of insanitary dwellings. These mostly were poor people who could not afford to pay rent. In future fever cases would be treated in one large hospital which would be under the joint control of representatives of the present board of Cork-street Fever Hospital, the corporation of Dublin, and the Dublin county council. It would be built from funds supplied from the Hospitals' Sweepstakes. The maternity services of Dublin are, Mr. Russell says, very satisfactory: for some years there has been no instance of a midwifery case being attended by an untrained or unqualified person. The hospitals in the city were maintained on a voluntary basis, the corporation making annual contributions amounting in all to £6072 a year. Payments were also made to certain hospitals for services in connexion with child welfare, the school medical service, tuberculosis, and venereal disease. The corporation was represented on the management of all the voluntary hospitals in receipt of grants except in two cases. The voluntary system, each hospital being its own master, had worked well, and he never found any difficulty in getting a poor patient into hospital. The relation between the corporation and the hospitals was most friendly and no difficulty ever arose. He did not see any need for a municipal hospital or for reserving a certain number of beds in each hospital. The health of the city was improving, particularly as regards tuberculosis, and infant mortality was diminishing.

There was a public abattoir in Dublin, but there were still 64 private slaughter-houses. Licences were not renewed for these latter on the death of a licensee, as it was very desirable to abolish all slaughter-houses. The total Government grants to the public health department of the city amounted to £31,258, of which £10,336 was for tuberculosis, £4371 for school meals, £7232 for maternity and child welfare work, and £4225 in respect of the treatment of venereal disease.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capt. A. T. Rivers placed on the Ret. List.

Surg. Comdr. M. Brown to *President* for Medical Dept., temp.

Surg. Comdr. W. H. Murray to *Drake* for R.N. Hospl., Plymouth.

Surg. Lt.-Comdrs. R. R. Baker to *Victory* for R.M. Infirmary, Portsmouth, and C. Keating to *St. Angelo* for R.N. Hospl., Malta.

Surg. Lt. J. W. Oliver to *Pembroke* for R.M. Infirmary, Chatham.

ARMY MEDICAL SERVICES

Maj.-Gen. (Supern.) P. H. Henderson, C.B., D.S.O., late R.A.M.C., K.H.P., and Maj.-Gen. J. F. Martin, C.B., C.M.G., C.B.E., late R.A.M.C., K.H.S., retire on ret. pay.

Col. G. A. D. Harvey, C.M.G., late R.A.M.C., to be Maj.-Gen.

Lt.-Cols. to be Cols.: G. F. Dawson, M.C., from R.A.M.C., and A. C. Hammond Searle, M.C., from R.A.M.C.

The undermentioned relinquish their appts.: Maj.-Gen. P. H. Henderson, C.B., as Dir. of Hygiene, War Office, and Col. A. C. Hammond Searle, M.C., as Asst. Dir. of Hygiene, War Office.

The undermentioned appts. are made: Col. H. H. A. Emerson, D.S.O., late R.A.M.C., to be Dir. of Hygiene, War Office, and Lt.-Col. D. T. Richardson, M.C., R.A.M.C., to be Asst. Dir. of Hygiene, War Office.

ROYAL ARMY MEDICAL CORPS

Majs. to be Lt.-Cols.: H. G. Winter, M.C., and N. Cantlie, M.C.

ROYAL AIR FORCE

Wing Comdr. P. H. Young to No. 11 Flying Training School, Wittering, for duty as Senior Medical Officer.

Squadron Leader C. J. S. O'Malley to Princess Mary's R.A.F. Hospital, Halton, for duty as Medical Officer.

Flight Lts. F. B. C. L. B. Crawford and N. I. Smith are promoted to the rank of Squadron Leader.

Flying Offrs. H. F. Harvey, J. C. Blair, and A. W. Callaghan are promoted to the rank of Flight Lt.

Flight Lt. G. S. Strachan to Central Medical Establishment, London.

DEATHS IN THE SERVICES

Lieut.-Colonel WILLIAM JAMES NIBLOCK, who died on Oct. 10th at Bournemouth, was born in July, 1871, qualified M.B. R.U.I. in 1894, and became F.R.C.S.I. in 1906. He took his first commission in the Indian Medical Service in January, 1896, became major in July, 1907, and rose to be first surgeon and superintendent of the General Hospital, Madras, and principal and professor of surgery in the Medical College, Madras, in 1912. He retired in February, 1923. He was an hon. associate of the Order of St. John of Jerusalem in England.

OBITUARY

SIR FREDERIC CONWAY DWYER, M.D. Dub.

PAST PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND

Sir Conway Dwyer, who died in Dublin on Oct. 10th, had been in failing health for some time, and had retired from active practice about two years ago. Born in Dublin in 1860, Dwyer received his medical education at Trinity College, Dublin, where he graduated in medicine and surgery in 1883. Within a few years of qualification he was appointed one of the surgeons to Jervis-street Hospital, whence he emigrated some years later to the Meath Hospital, and in 1907 he was appointed surgeon to the Richmond Hospital. In recent years he was chairman of the board of governors of the last-mentioned institution. In 1898 he became a fellow of the Royal College of Surgeons in Ireland, of which he subsequently was vice-president, president, and honorary secretary; he was also for some years professor of surgery in its school. During the war Dwyer was operating surgeon at King George V. Hospital in Dublin with the rank of lieutenant-colonel, and he was knighted in 1921. He was inspector of anatomy for Ireland, and also visiting inspector in lunacy; and he took much interest in the Peamount Hospital for Consumption, where he became honorary treasurer and chairman.

[*Photograph by Lafayette*
SIR CONWAY DWYER

For the greater part of a long professional life Sir Conway enjoyed a large consulting and operating practice. His interests in surgery were not limited to one field, and he was an admirable general hospital surgeon. Gifted with abundant common sense and sound judgment, he was painstaking and careful in his work, and was liked both by patients and colleagues for his geniality and kindness. He was unmarried.

PANEL AND CONTRACT PRACTICE

Dangerous Drugs

AT the annual conference of the National Association of Clerks to Insurance Committees a discussion on some of the difficult points of medical benefit was initiated by the clerk of the London committee. One is the position of a practitioner who, having been deprived of his authority to possess, to supply, or to prescribe dangerous drugs, applies for admission to the medical list. The practitioner (still a registered practitioner) would have a right to have his name included in the medical list in exactly the same way as any other doctor, but the committee would require him to make an arrangement with another practitioner to deputise for him in any case in which the use of one of the scheduled drugs was necessary. But this would depend on the willingness of another practitioner to work with him.

Conflicting Tribunals

Another matter for discussion emerged from a case which recently arose in which a complaint was made in respect of treatment provided for a deceased insured person, and at the same time an action was started by the father of the deceased girl for the recovery of damages from the practitioner. The medical service subcommittee decided that the case was one of which they could not dispose without a hearing. The solicitors for the complainant and those for the respondent then requested that the hearing should be deferred pending the result of the proceedings in the courts, which were not likely to be heard for several months. The medical service subcommittee proposed to defer the hearing pending the result of the action but asked advice from the Ministry of Health. The Ministry stated that they were unable to give advice on the general question raised by the committee, but added that they saw no objection to the postponement of the investigation by the subcommittee pending the result of the other proceedings. The doctor then applied for leave of absence from his practice for a lengthy period, but as the committee were not satisfied that the absence would be due to a reasonable cause they refused. The doctor then gave three months' notice of his desire to withdraw from the medical list, which he had a perfect right to do. It became clear, in view of the time which must elapse before the case could be reached in the courts, that unless the hearing preceded the action in the courts the doctor would no longer be an insurance practitioner by the time the subcommittee could hear the case, and consequently if he were found to be culpable the committee would be placed in a position of considerable embarrassment. Fortunately perhaps, after much correspondence, the complaint to the committee was withdrawn, neither party being desirous apparently of running the risk of the legal action being prejudiced by the result of the medical service inquiry.

A Complaint that Failed

Article 33 (1) of the Medical Benefit Regulations gives power to a medical service subcommittee, if they think fit, to permit any person concerned in an investigation to be assisted in the presentation of his case by some other person, but no person is entitled to appear in the capacity of counsel, solicitor, or other paid advocate. This permissive power to admit a "friend" must not be confused with the right of the secretary or other officer of the society or branch of which the insured person may be a member, and the secretary or other officer of the panel committee to be present, a right which so far as the panel committee officer is concerned is usually exercised. The Manchester medical service subcommittee recently heard a case in which the complainant, the mother of a deceased insured person, was assisted in the presentation of her case by a clergyman who was also a witness on her behalf.

The question arising was a comprehensive one covering alleged irregular and insufficient attention, the issue of certificates without seeing the patient, delay in recommending hospital treatment, and a complaint as to the circumstances under which the patient was sent to hospital during the night on which he died. The patient had a valvular heart lesion and following an attack of influenza a subacute malignant endocarditis developed; he was also anæmic. The first two points were not substantiated. With regard to the hospital treatment a specialist was called in—the patient's employers having assumed responsibility for the cost—and he advised hospital treatment to which both the patient and his mother were at first averse, but on the following day they changed their minds and informed the doctor, who immediately notified the specialist and asked him to arrange for admission as soon as possible. Admittedly delay did then occur, but as the arrangements for the admission of the patient to the hospital rested upon the consultant the respondent doctor could not be blamed, nor was it within the province of the committee to investigate the circumstances of the delay.

Meanwhile the doctor had continued to treat the patient and visited him on the afternoon of March 20th, 1935. During the night of March 21st–22nd the mother went to the doctor two or three times between 12.30 and 2.30 A.M., and it is agreed that she saw him twice. On the first occasion the doctor handed her a tablet of digitalin and strychnine which she was to administer to the patient and to let the doctor know if he did not improve. On the second occasion the doctor—who had been clearing up his work in preparation for a journey to Scotland to attend the funeral of his mother on the following day—was in his bath and to save disturbing the household answered the door himself clad only in a bath towel. He was told that the patient was no better and then decided that the only hope was to take the risk of securing the boy's immediate admission to hospital. It would have taken him some 25 minutes to dress and get to the patient and he therefore telephoned for an ambulance which arrived at the patient's house within five minutes and transported the boy to the hospital where he died before admission to a ward.

From the evidence of the doctor and of the specialist there was no hope of the patient's recovery, but it was thought that treatment in hospital might have prolonged his life. The subcommittee found that the charges of neglect had not been established, but they observed that in the light of after knowledge of the events they believed that a visit to the patient during the last night would have been the better course but they were satisfied, in the circumstances with which the doctor was faced at the time, that he took the action which he believed was in the best interests of the patient and relatives.

MEDICAL NEWS

Royal College of Surgeons of England

A quarterly meeting of the council was held on Oct. 10th with Sir Cuthbert Wallace, the president, in the chair. Dr. William Bradley Coley, of New York, was admitted an honorary fellow of the college and Mr. Joseph Jacobs, of Lewis's School, Pengam, was admitted as the sixth Macloghlin scholar. It was reported that at the promotion examination for 1935 the Sir Gilbert Blane gold medals had been awarded to Surgeon Lieutenant-Commander A. A. Pomfret and Surgeon Lieutenant-Commander W. G. C. Fitzpatrick.

Diplomas of membership were granted to the following candidates :—

T. D. Chablani, Bombay St. Geo.; B. P. Datta, Calcutta and Lond.; E. W. Knowles, Liverp.; and Phyllis J. M. Sykes, Univ. Coll.

Diplomas in anæsthetics were granted jointly with the Royal College of Physicians to the following :—

G. F. V. Anson, Herbert Charles, L. T. Clarke, Elsie C. Hanson, O. J. Murphy, and J. D. Stewart.

A series of demonstrations of specimens in the museum will be opened on Monday, Oct. 21st, when Dr. A. J. E. Cave will speak on the anatomy of the faucial tonsil. The second lecture will be given on Oct. 25th by Mr. C. P. G. Wakeley, on tumours of the brain and spinal cord. On Oct. 28th and Nov. 4th Dr. L. W. Proger will describe some diseases of bone, and on Nov. 1st and 8th Dr. Cave will deal with the anatomy and physiology of the human larynx. The lectures will be held at 5 P.M. at the College, Lincoln's Inn Fields, London, W.C., and are open to medical practitioners and advanced students.

University of London

The next award of the Rogers prize of £100, which is offered from time to time by the senate for the best essay on a medical or surgical subject, will be made in 1936. The subject chosen is the natural history of peptic ulcers. Further information will be found in our advertisement columns.

University of Dublin

At recent examinations at the School of Physic, Trinity College, the following candidates were successful :—

FINAL EXAMINATION FOR M.B., B.CH.

Part I. (*Pathology, Therapeutics, &c.*).—W. T. Kenny, Mandel Friedman, M. C. Brough, J. H. Mitchell, J. E. Gillespie, F. C. Heatley, Robert Pollock, J. C. Lambkin, P. G. Patton, Jasmine Taylor, O. M. Harrison, G. K. Donald, Grace M. Wild, R. J. Sandys, D. B. George, Patricia M. J. Conway, and J. N. G. Drury.

University of Wales

In a recent examination for Part II. of the diploma in public health the following candidates were successful :—

Robert Cameron, T. C. R. George, Joan E. Greener (with distinction), D. J. Jones, G. R. Jones, and J. M. Thomas.

University of Sheffield

On Oct. 11th H. A. Krebs, M.A. Camb., M.D. Hamburg, was appointed lecturer in pharmacology in the university. The title of emeritus professor was conferred on Dr. C. J. Patten, late professor of anatomy, and Mr. Miles Phillips, late professor of obstetrics and gynæcology.

The late Dr. John Stokes, of Sheffield, who died on June 5th, left property to the value of over £20,000. After a few small bequests, including £100 to the Children's Hospital, Sheffield, he left the residue of the property to the University. He expressed the wish that the legacy would be used to establish a fellowship in any subject tending to advance the science of medicine and alleviate the sum total of human suffering.

Royce Research Fellowships

The late Sir Henry Royce instructed that a tenth of his fortune should be used to promote medical research, and the money has been used for the establishment of two fellowships, each of £500 a year, for investigation of influenza and the common cold. One of the fellowships is held by Dr. C. H. S. Harris at the British Postgraduate Medical School, Hammersmith, and the second has now been awarded to Dr. Leslie Hoyle, demonstrator in pathology and bacteriology at Leeds Medical School. Dr. Hoyle will work at the University of Manchester. The fellowships are tenable for three years, and the holders will collaborate in their inquiries.

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty held on Oct. 7th Gilbert Forbes, M.B. (Glasgow), and Hugh Gordon Neill, M.B. (Glasgow), were admitted to the fellowship.

St. John Clinic and Institute of Physical Medicine

A post-graduate course on practical methods of physical medicine will be held at the clinic, Ranelagh-road, London, S.W., on alternate Fridays, at 4.30 P.M., from Nov. 1st to March 20th. Sir Leonard Hill, F.R.S., will give the first lecture and will speak on the action of ultra-violet, visible, and infra-red rays.

Semon Lecture

This annual lecture will be delivered at the house of the Royal Society of Medicine, 1, Wimpole-street, W., at 5 P.M., on Thursday, Oct. 31st, by Sir StClair Thomson, who has chosen for his subject the Defences of the Air-passages. The lecture is given under the auspices of the University of London, and the chair will be taken by Mr. H. L. Eason, the Vice-Chancellor.

Chadwick Trust

Sir William Collins will preside at a lecture arranged by this Trust to be given by Captain R. St. Barbe Baker, founder of the Men of the Trees, in the hall of the Royal Geographical Society, Exhibition-road, Kensington Gore, on Wednesday, Oct. 23rd, at 8.15 P.M. He will speak on the contribution of trees to national health and efficiency.

Royal Dental Hospital of London

School of Dental Surgery.—The twenty-sixth annual At Home of this school will be held on Saturday, Nov. 23rd. The morning, from 9.30 A.M. to 12.30 P.M., will be devoted to demonstrations at the in-patient department of Charing Cross Hospital and in the various departments of the Royal Dental Hospital, where there will also be an exhibition of clinical cases, photographs, and drawings in the afternoon.

Royal Institution

The afternoon lecture courses at the Royal Institution this winter include a survey of modern views on nutrition by Prof. Edward Mellanby, F.R.S., secretary of the Medical Research Council, to be given at 5.15 P.M. on Tuesdays, Nov. 26th, Dec. 3rd, 10th, and 17th. The Christmas course of six lectures for children will be given by Mr. C. E. K. Mees, D.Sc., director of research at the Eastman Kodak Company, on photography. The address of the institution is 21, Albemarle-street, London, W. 1.

Prize for Research in Rheumatism

The Russian Government, after consultation with the Ligue Internationale contre le Rhumatisme, has offered two prizes, each of 1000 gold roubles (about £180), for investigations carried out during the last ten years on clinical, scientific, or social aspects of rheumatism. Papers may be written in either English, German, or French, and four copies should be sent to the secretary of the league, Dr. J. van Breemen, Keizersgracht 489, Amsterdam, before Nov. 15th.

Lectures for Parents

A special autumn course for parents has been arranged by the Institute of Medical Psychology, and will be held at the clinic in Malet-place, London, W.C., on Tuesdays, at 6 P.M., from Oct. 22nd to Dec. 10th. The course will be in charge of Dr. Emanuel Miller and will cover such questions as the conflict of parents' temperaments, the sex education of children, and the general management of adolescence.

Midwives' Institute

Lady Forber (Dr. Janet Lane-Claypon) will deliver the Fynes-Clinton memorial lecture at this institute, 57, Lower Belgrave-street, London, S.W., at 5.30 P.M. on Oct. 24th. She will make a preliminary report on the present conditions of midwifery practice, based on a questionnaire issued by the institute to 8000 independent midwives in England and Wales. Lady Williams will preside. Free tickets will be available at the institute.

Dr. J. A. Ryle, regius professor of physic in the University of Cambridge, and Dr. Matthew Stewart, professor of pathology in the University of Leeds, have been appointed members of the Medical Research Council in succession to Lord Dawson of Penn and Prof. A. E. Boycott, F.R.S.

Whitworth Hospital, Darley Dale

There is a deficit of £3633 on this hospital, the loss on last year's working being £349, as against £385 in the previous year. Road accidents involve the hospital in a great deal of expense, and it has been necessary to spend money on bringing the operating theatre up to date.

Smallwood Hospital, Redditch

An appeal to raise £30,000 for extensions to this institution is to be launched. Twenty additional beds are required and improvements are needed in the X ray, massage, and out-patients' departments.

Essex County Hospital, Colchester

An extension scheme costing £40,000 is contemplated at this hospital to meet the future requirements of the large area which it serves. The contributory scheme showed an increase last year of over £400 in the country districts and amounted in all to £6197. The collection of £5833 from the workers of the borough of Colchester brought the total sum raised to over £12,000.

Bureau of Hygiene and Tropical Diseases

Dr. Harold Scott has now taken up his duties as director of this bureau in succession to Sir Arthur Bagshawe.

Educated at the Mercers' and City of London Schools, Dr. Scott received his medical training at St. Bartholomew's and St. Thomas's Hospitals and at University College, subsequently going on to Copenhagen. Qualifying with the Conjoint Board in 1897, he was house physician at St. Thomas's before serving in the South African war as a captain in the R.A.M.C. In 1900 he took the M.B. Lond. and was appointed Government bacteriologist in Jamaica, taking a similar position later at Hong-Kong. During the late war he was pathologist at the Cambridge Hospital, Aldershot, in charge of mobile laboratory No. 13. In 1930 he was appointed assistant director of the Bureau of Hygiene and Tropical Diseases, having previously been on the staff of the London School of Hygiene and Tropical Medicine as Milner research fellow in comparative pathology, holding at the same time the post of pathologist to the Zoological Society of London. He also lectured on tropical disease at the Westminster Hospital medical school, examined in tropical medicine and surgery for the Conjoint Board, and acted as medical secretary of the Colonial Medical Research Committee. He collaborated with the late Sir Andrew Balfour in a survey entitled Health Problems of the Empire—Past, Present, and Future, and in 1930 his important review of tuberculosis in man and lower animals was published as a special report (No. 149) by the Medical Research Council. He has contributed frequently to the *Annals of Tropical Medicine and Parasitology*, and is the author of a recent work entitled "Notable Epidemics." He was elected F.R.C.P. Lond. in 1925, and is a fellow of the Royal Society of Edinburgh.

Medical Missionaries in Abyssinia

There is some doubt whether the evacuation of Addis Ababa by British subjects will apply to the missionaries working there. It is stated that all the representatives of the Missionary Society, numbering about fifteen, have had at least a short medical training, and have all offered for Red Cross work. We are informed that Mr. and Mrs. Colin Mackenzie have been in charge for some time of the Swedish Hospital at Harar, while Dr. and Mrs. Kenneth Buxton were due at Jibuti on Monday last and are taking medical equipment to Harar. Dr. Lionel Gurney is at the hospital at Asba Tafari; while Dr. Ted Gurney, his brother, and Mrs. Gurney are preparing to leave England for Abyssinia as soon as possible. The Sudan Interior Mission, which sent three new missionaries to Abyssinia last week, also hopes that its British missionaries will be allowed to remain. Dr. T. A. Lambie, formerly an American, who is in charge of the Mission's work in Abyssinia, is a naturalised Abyssinian and will not be affected by the order. But there are also about 25 British missionaries, mostly Canadian, Australian, and New Zealand, with the Mission, besides nearly 40 Americans. Some of them, including Dr. E. R. Hooper, the Canadian in charge of the leprosarium at Addis Ababa, are medically qualified, and there are at least six qualified nurses. Most of the rest, if not all, have taken a medical course in their missionary training, and will be able to offer for Red Cross work.

Films for Nurses

For the first time in Liverpool a film has been shown in a training class for nurses. The film was sponsored by the Merseyside Film Society and was shown at Walton Hospital.

Coventry and Warwickshire Hospital

The board of management hope to begin the extensions to this hospital some time after Easter. The fund now stands at £95,000, but £120,000 will probably be required.

Lady Chichester Hospital, Hove

On Oct. 1st the Bishop of Chichester dedicated to the memory of Bishop Russell Wakefield a new consulting-room for the medical staff of this hospital. He also dedicated a new wing which has been built by the trustees of the John Howard bequest.

New Hospital for Wakefield

The Mayor of Wakefield has opened a new municipal maternity hospital, child welfare centre, and antenatal clinic at Manygates Park, Wakefield. The hospital has accommodation for 35 patients, and was built at a cost of £27,000.

Society for Relief of Widows and Orphans of Medical Men

At a meeting of the court of directors, held on Oct. 9th, Mr. V. Warren Low being in the chair, seven new members were elected. A grant of £52 10*s.* a year for five years was made to a widow to enable her daughter to study medicine; the daughter had already passed her preliminary medical examination. A sum of £645 was voted as a Christmas present, to be distributed as follows: widows over 75 to receive £15 each, under 75 each £10, orphans £10 each. A widow who had died since the last meeting of the court came on the funds in 1919 and had received in grants £1155. Membership in the society is open to any registered medical man, who at the time of his election is residing within a twenty-mile radius of Charing Cross. Full particulars from the secretary, 11, Chandos-street, London, W. 1.

Chelsea Clinical Society

Mr. H. Paxton Baylis, the president, took the chair at the annual dinner of this society held at the Rembrandt Hotel on Tuesday last. Field-Marshal Lord Milne, who proposed the health of the Society, remarked that in the absence of any direct information he had consulted the dictionary for the meaning of a clinical society. Combining the information given under the two words, he had decided that it was a number of persons associated by a common interest confined to bed through sickness. The evening which he had spent had not, however, borne out this expectation. During the war he had come into close contact with the medical profession, and without its aid he would not have been there that evening. As chairman of a physical training institute in the East End, he urged the profession to induce the parents of the country to take more interest in the physical education of their children. As an active soldier, he had found a lamentable physique among the upper classes. Physical training was much more important than games. The President, in his reply, reported that the membership of the society and the attendance at its meetings had increased. In 1897 it had numbered 17 members, who had met in a dispensary in Chelsea under the presidency of Dr. Foster Palmer. Its members were now 230, and it met in an atmosphere of camaraderie and good fellowship. Just as in the past a physician had given medicine in some palatable disguise, so the society administered a basis of good food and wine before the discussion of its medical problems. Dr. Desmond MacManus, proposing the health of the guests, spoke of Lord Milne's drive and energy as chairman of the Cancer Hospital. Mr. H. L. Eason, in reply, declared that of all the faculties of the University of London the most distinguished was that of medicine; it was unparalleled throughout the Empire for wealth of clinical material, hospitals, and societies, and it provided between 40 and 50 per cent. of the whole medical profession of England, Scotland, and Wales. Dr. Bernard Myers, who also replied, spoke of the incalculable value of medical societies.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Oct. 22nd.
Medicine. 5 P.M. Dr. Arnold Stott and Dr. D. Evan Bedford: The Recognition of Myocardial Disease. Dr. A. G. Gibson will also speak.
WEDNESDAY.
Comparative Medicine. 5 P.M. Prof. J. C. G. Ledingham, F.R.S.: The Comparative Study of Clinically Allied Viruses: Some Unsolved Problems of Edward Jenner (presidential address).
THURSDAY.
Urology. 8.30 P.M. Mr. R. Ogier Ward: Some Remarks on Vesical Diverticula (presidential address).
FRIDAY.
Disease in Children. 5 P.M. (Cases at 4.30 P.M.) Dr. E. A. Cockayne: 1. Arachnodactylia with Congenital Heart Disease (? Intraventricular Septum). Dr. R. Cove-Smith and Dr. Alan Moncrieff: 2. Defective Saliva and Digestive Disturbance. Dr. E. Fletcher and Mr. Holmes Sellors: 3. Lobectomy for Bronchiectasis. Dr. A. M. Stewart-Wallace (for Dr. R. A. Rowlands): 4. A Probable Case of Pick's Disease. 5. Case for Diagnosis. † Cerebral Degeneration.
Epidemiology and State Medicine. 8.15 P.M. Surgeon Captain S. F. Dudley: On the Biological Approach to the Study of Epidemiology (presidential address).
Physical Medicine. 8.30 P.M. Dr. C. B. Heald: Electrotherapy 1910–35, including Experiments in the Induction of Artificial Fever (presidential address).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.
MONDAY, Oct. 21st.—8 P.M., Annual General Meeting. 8.30 P.M., Prof. G. E. Gask: Changing Surgery (presidential address).

MEDICO-LEGAL SOCIETY.
THURSDAY, Oct. 24th.—8.30 P.M. (Manson House, 26, Portland-place, W.), Mr. C. A. Mitchell, D.Sc.: Forensic Chemistry in relation to Medicine (presidential address).

EUGENICS SOCIETY.
TUESDAY, Oct. 22nd.—5.15 P.M. (rooms of the Linnean Society, Burlington House, Piccadilly, W.), Mr. Herbert Brewer: Eutelegenesis—Objections and Criticisms Considered.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY, 49, Leicester-square W.C.
WEDNESDAY, Oct. 23rd.—4.30 P.M., Clinical Cases.

BRITISH ORTHOPÆDIC ASSOCIATION.
FRIDAY, Oct. 25th, and SATURDAY.—Annual meeting at Manchester.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, Oct. 21st.—5 P.M., Dr. A. J. E. Cave: The Anatomy of the Faucial Tonsil.
FRIDAY.—5 P.M., Mr. C. P. G. Wakeley: Tumours of the Brain and Spine.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 21st, to SATURDAY, Oct. 26th.—INFANTS HOSPITAL, Vincent-square, S.W. Mon., Wed., and Fri., 8 P.M., course for the F.R.C.S. Primary (Anatomy and Physiology).—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. All-day course in gynæcology.—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck-street, W. All-day course in neurology.—ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W. Sat. and Sun., course in physical medicine.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W. Thurs., 4 P.M., Mr. Albert Davis: Neurosurgery in the Relief of Gynæcological Pain.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W. Tues., 8.30 P.M., Dr. R. D. Lawrence: Pancreas. Thurs., 8.30 P.M., Dr. S. Levy Simpson: Adrenal.
Courses and lectures arranged by the Fellowship are open only to members and associates.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.
THURSDAY, Oct. 24th.—3 P.M., Dr. Russell Brain: Demonstrations.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.
WEDNESDAY, Oct. 23rd.—4 P.M., Dr. Saxby Willis: Thoracic Pain.

ST. PAUL'S HOSPITAL, Endell-street, W.C.
WEDNESDAY, Oct. 23rd.—4.30 P.M., Mr. W. K. Irwin: Some Important Prostatic Diseases.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Oct. 24th.—2 P.M., Mr. T. Twistington Higgins: Some Points in Genito-urinary Surgery. 3 P.M., Dr. A. Signy: Specific Immunisation (III).
Out-patient clinics daily at 10 A.M. and ward visits (except on Wednesday) at 2 P.M.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Oct. 21st.—3.30 P.M., Dr. Kinnier Wilson: Organic Dementia (I).
TUESDAY.—3.30 P.M., Dr. Purdon Martin: The Cranial Nerves (III).
WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.
THURSDAY.—3.30 P.M., Dr. Riddoch: The Sensory System (III).
FRIDAY.—3.30 P.M., Dr. Bernard Hart: The Psychoneuroses (III).
Out-patient clinic daily at 2 P.M.

WEST LONDON POST-GRADUATE COLLEGE, W.6.
MONDAY, Oct. 21st.—10 A.M., medical and surgical wards, skin clinic. 2 P.M., gynæcological and surgical wards, eye and gynæcological clinics. 4.15 P.M., Mr. Green-Armytage: Errors in Treatment.
TUESDAY.—10 A.M., medical wards and dental clinic, 11 A.M., surgical wards. 2 P.M., throat clinic. 4.15 P.M., Dr. Konstam: The Thyroid and the Heart.
WEDNESDAY.—10 A.M., children's wards and clinic, medical wards. 2 P.M., eye clinic. 4.15 P.M., Dr. Archer: Biochemical Demonstration.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., eye and genito-urinary clinics. 4 P.M., venereal diseases.
FRIDAY.—10 A.M., skin and dental clinics. Noon, Lecture on Treatment. 2 P.M., throat clinic. 4.15 P.M., Dr. Hugh Gordon: Differential Diagnosis of Common Skin Diseases.
SATURDAY.—10 A.M., surgical and children's clinics, medical wards. The lectures at 4.15 P.M. are open to all medical practitioners without fee. Operations and medical and surgical clinics daily at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 49, Leicester-square, W.C.
TUESDAY, Oct. 22nd.—5 P.M., Dr. J. E. M. Wigley: Tuberculosis Cutis.
THURSDAY.—5 P.M., Dr. H. W. Barber: Psoriasis.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.
THURSDAY, Oct. 24th.—9 P.M., Mr. J. B. Hunter: Surgical Treatment of Pulmonary Tuberculosis.

UNIVERSITY OF LONDON.
TUESDAY, Oct. 22nd.—5 P.M. (University College Hospital Medical School), Prof. Charles Singer: History of Museums and Collections.
TUESDAY, THURSDAY, and FRIDAY.—5.30 P.M. (University College), Prof. Pol Gerard: Comparative Histopathology of the Vertebrate Nephron.

LONDON SCHOOL OF HYGIENE, Keppel-street, W.C.
WEDNESDAY, Oct. 23rd.—4.30 P.M., Prof. R. A. Fisher, F.R.S.: Eugenics and National Health (second lecture).

INSTITUTE OF MEDICAL PSYCHOLOGY, Malet-place, W.C.
TUESDAY, Oct. 22nd.—6 P.M., Dr. Emanuel Miller: Problems of Parenthood (first of a course of eight weekly lectures).

INSTITUTE OF HYGIENE, 28, Portland-place, W.
WEDNESDAY, Oct. 23rd.—3.30 P.M., Dr. A. A. Moncrieff: The Early Weeks of Life in relation to the Health of the Adolescent.

UNIVERSITY OF SHEFFIELD.
FRIDAY, Oct. 25th.—3 P.M. (Royal Infirmary), Mr. J. H. Cobb: Ear, Nose, and Throat Clinic. 3 P.M. (Royal Hospital), Dr. Rupert Hallam: Dermatological Clinic. Mr. E. Gordon Mackie: Ophthalmological Clinic.
SUNDAY.—10.30 A.M. (Royal Hospital), Dr. C. Gray Imrie and Dr. A. Gurney Yates: Medical cases. Mr. Wilfred Hynes: Surgical cases. 10.30 A.M. (Jessop Hospital), Mr. Glyn Davies: Gynæcological cases.

UNIVERSITY OF BRISTOL.
TUESDAY, Oct. 22nd.—5.15 P.M., Dr. Macdonald Critchley: Occurrence of Pain (Long Fox lecture).

GENERAL INFIRMARY, Leeds.
TUESDAY, Oct. 22nd.—3.30 P.M., Dr. Vining: Convulsive Disorders of Childhood.

PUBLIC DISPENSARY AND HOSPITAL, Leeds.
WEDNESDAY, Oct. 23rd.—4 P.M., Mr. A. D. Sharp: Ear, Nose, and Throat—selected cases.

ANCOATS HOSPITAL, Manchester.
THURSDAY, Oct. 24th.—4.15 P.M., Dr. R. Ellis: Medical Treatment of Urinary Infections.

ROYAL INFIRMARY, Manchester.
TUESDAY, Oct. 22nd.—4.15 P.M., Dr. Norman Kletz: Functional Disorders of the Digestive System.
FRIDAY.—4.15 P.M., Mr. A. Graham Bryce: Demonstration of surgical cases.

WAR MEMORIAL HOSPITAL, SHOOTER'S HILL.—Extensions to this hospital are urgently needed and an appeal for £40,000 is being made. A nurses' home is required and the maternity ward, which has only eight beds, is inadequate for the needs of the district. Waiting-lists are lengthening, emergency beds have been brought into use, and expenditure is increased by nurses having to sleep in quarters outside the hospital.

Appointments

BARLING, B., M.D., M.R.C.P. Lond., has been appointed Deputy Medical Superintendent, Grade II., at St. Mary Abbots Hospital, L.C.C.

COHEN, H. M., M.B. Liverp., D.P.H., Senior School Medical Officer for the Borough of Rotherham.

JOHNSTONE, M. B., F.R.C.S. Edin., D.M.R.E., Assistant Radiologist at the Hammersmith Hospital, L.C.C.

MARSHALL, S. F., M.B. Lond., Assistant Medical Officer and Pathologist at the Old Church Hospital, Romford.

MORLEY, JOHN, Ch.M. Manch., F.R.C.S. Eng., Hon. Consulting Surgeon to the Manchester Babies' Hospital.

PLATT, HARRY, M.S. Lond., F.R.C.S. Eng., Hon. Consulting Orthopædic Surgeon to the Manchester Babies' Hospital.

Kingston and District Hospital.—The following appointments are announced:—

WARNER, E. C., M.D., M.R.C.P. Lond., Visiting Physician;

GRIFFITHS, J. IVOR, M.B. Lond., F.R.C.S. Eng., Visiting Aural Surgeon; and

TODD, A. H., M.S. Lond., F.R.C.S. Eng., Visiting Orthopædic Surgeon.

Vacancies

For further information refer to the advertisement columns

Abyssinia Ambulance Unit.—Medical Officers.

Ashton-under-Lyne District Infirmary.—Res. Surg. O. At rate of £200.

Bath and Wessex Children's Orthopædic Hospital, Combe Park.—H.S. At rate of £120.

Birmingham, Erdington House.—Jun. Asst. M.O. At rate of £200.

Bristol Eye Hospital.—Jun. Res. H.S. £100.

Bristol, Ham Green Hospital and Sanatorium.—Jun. Asst. Res. M.O. £250.

Burton-on-Trent General Infirmary.—H.P. and Cas. O. £150.

Buxton Clinic for Rheumatism and Allied Diseases.—H.P. At rate of £150.

Cairo, Egypt, Giza Memorial Ophthalmic Laboratory.—Asst. Surgeon. L.E.800.

Cambridgeshire C.C.—Asst. County M.O. £600.

Cardiff, King Edward VII. Welsh National Memorial Association.—Asst. Res. M.O. for Glan Ely Tuberculosis Hospital. £200. Also Asst. Res. M.O. for South Wales Sanatorium. £200.

Cardiff Royal Infirmary.—Cas. Surg. O. At rate of £75.

Chesterfield Poor Law Institution and Infirmary.—Res. M.O. £450.

Colonial Medical Service.—Medical Officers.

Doncaster Royal Infirmary.—H.S. At rate of £175.

Dreadnought Hospital, Greenwich.—Anæsthetist. 50 Guineas.

Durham County Council.—District Tuber. M.O. £500. Also M.O. for Earl's House Sanatorium. £450.

Ealing Borough.—Ophth. Surgeon. £275.

Godalming, King George V. Sanatorium.—Asst. M.O. £350.

Golden-square Throat, Nose, and Ear Hospital, W.—H.S. £100.

Halifax General Hospital.—Jun. Res. M.O. £250.

Hampstead General and N.W. London Hospital, Haverstock Hill, N.W.—H.S. At rate of £100.

Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W. Res. H.S. At rate of £75.

Hostel of St. Luke, 14, Fitzroy-square, W.—Res. M.O. At rate of £200.

Hove General Hospital.—Res. M.O. At rate of £150.

Huddersfield Royal Infirmary.—H.S. for Eye, Ear, and Obstet. Depts. At rate of £150.

Jersey General Hospital and Poor Law Infirmary.—Asst. Res. M.O. At rate of £150.

Kingston-upon-Hull City and County.—Asst. M.O.H. £600.

Lancaster Royal Infirmary.—Jun. H.S. At rate of £130.

Lewisham Hospital, High-street, S.E.—Asst. M.O. £350.

Leytonstone Children's Home, High-road, E.—Part-time M.O. At rate of £210.

Liverpool University.—Lectureship in Bacteriology. £400.

L.C.C.—Temporary District M.O.'s for Special Areas.—£100–£235.

London Jewish Hospital, Stepney Green, E.—Res. M.O. and H.P. At rate of £150. Also H.S. and Cas. O. Each at rate of £100.

London Lock Hospital, 283, Harrow-road, W.—Surg. Reg. for Dean-street Hospital. £100.

London University.—University Chair of Anatomy at King's College. £1100. Also Rogers Prize 1936. £100.

Manchester City.—Asst. Tuber. O. £650.

Middlesbrough Education Committee.—Sen. Asst. School M.O. £500.

Mount Vernon Hospital, Northwood, Middlesex.—H.S. At rate of £150.

New Zealand, Wanganui Hospital.—Radiologist. £800.

Nottingham, City Mental Hospital.—Jun. Asst. M.O. £350.

Portsmouth Royal Hospital.—H.S. At rate of £130.

Prince of Wales's General Hospital, N.—Hon. Physician to Dept. of Physical Medicine.

Princess Louise Kensington Hospital for Children, St. Quinton-avenue, W.—Hon. Asst. Physician. Also two Clin. Assts. for Out-patient Sessions.

Queen's Hospital for Children, Hackney, E.—Dermatologist.

Royal Chest Hospital, City-road, E.C.—Res. M.O. Also H.P. At rate of £150 and £100 respectively.

Royal Dental Hospital of London, 32, Leicester-square, W.C.—Two Part-time House Anæsthetists. 10*s.* 6*d.* per session.

Royal Free Hospital, Gray's Inn-road, W.C.—Dermatologist.

St. Charles' Hospital, St. Charles'-square, Ladbroke-grove, W.—Asst. M.O. £350.

St. James' Hospital, Ouseley-road, Balham, S.W.—Asst. M.O. £350.

St. Mary's Hospital, W.—Second Obstet. Surgeon for Out-patients.

St. Thomas's Hospital, S.E.—Ophthalmic Surgeon.

Sheffield Royal Hospital.—Clin. Asst. to Ophth. Dept. £300.

Sheffield Royal Infirmary.—H.S. Also Aural H.S. Each at rate of £80.

Sheffield, Winter-street Hospital.—Asst. Tuber. O. £350.

Southampton Borough General Hospital.—Asst. Res. M.O. £350.

Southend-on-Sea County Borough.—Asst. M.O.H. £600.

South London Hospital for Women, Clapham Common, S.W.—Clin. Assts.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. and Jun. Res. H.S.'s. At rate of £150 and £100 respectively.

West Suffolk County Council.—Asst. County M.O. and Asst. School M.O. £500.

Wolverhampton Royal Hospital.—Asst. Pathologist and Med. Reg. £150.

Wolverhampton and Midland Counties Eye Infirmary.—H.S. £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Helensburgh (Dumbartonshire) and Rochdale (Lancashire).

Births, Marriages, and Deaths

BIRTHS

LLOYD.—On Oct. 6th, at Cheltenham, the wife of J. P. F. Lloyd, F.R.C.S. Eng., of a son.

MCCOMAS.—On Oct. 11th, at Park Vale Nursing Home, Streatham, the wife of Geoffrey McComas, M.D., M.R.C.P. Lond., of a son.

ROSE.—On Oct. 6th, at Welbeck-street, W., the wife of Dr. S. Rose, of Wimbledon, of a daughter.

STANLEY.—On Oct. 5th, at Ware, Herts, the wife of Brian Stanley, B.Sc., M.R.C.P. Lond., of a son.

STANLEY.—On Oct. 10th, at East Grinstead, the wife of Roger Stanley, M.R.C.S. Eng., of a son.

WILSON.—On Oct. 6th, at St. Dennis, Cornwall, the wife of C. M. Wilson, M.B., Ch.B. Edin., of a daughter.

MARRIAGES

CUTTING—PHIBBS.—On Oct. 5th, at All Souls', Langham-place, Philip Edwin James Cutting, M.D., B.S. Lond., D.T.M. Liverp., C.M.S. Hospital, Cairo, to Margaret Edith, only child of the Rev. Alfred Phibbs, of Matlock, Bath.

HALL—GOULD.—On Oct. 5th, at the Congregational Church, Watford, Herts, Gilbert Steward Hall, M.B., Ch.B. Birm., to Mary Elaine Gould, M.B., B.S. Lond., elder daughter of the Rev. F. J. Gould, of Watford.

HOEY—SMALL.—On Oct. 8th, in London, Trevor Hoey, M.B. Oxon., M.R.C.S. Eng., to Elizabeth Napier Small.

PRICE—BROCKBANK.—On Oct. 5th, at Great Barton Parish Church, Cyril Frederick Price, M.B., B.S., to Dora Elizabeth Brockbank, M.B., B.S. Lond.

SILVER WEDDING

RAVEN—ROBERTSON.—On Oct. 11th, 1910, at Bishopsbourne, near Canterbury, Hugh M. Raven, M.R.C.S., L.R.C.P., eldest son of the late Thomas Raven, M.R.C.S., of Broadstairs, to Jean, daughter of the late John Robertson, of Alassio, Italy.

DEATHS

CORTHORN.—On Oct. 8th, Alice Mary Corthorn, M.B., B.S. Lond., B.Sc., aged 76.

DWYER.—On Oct. 10th, in Dublin, Sir Frederick Conway Dwyer, M.D., F.R.C.S.I., ex-President of the Royal College of Surgeons in Ireland, aged 75.

MINETT.—On Oct. 5th, at Uplyme, Devon, E. P. Minett, M.D. Brux., D.P.H. Camb., D.T.M. and H.

NIBLOCK.—On Oct. 10th, at Bournemouth, Lieut.-Col. William James Niblock, M.B., F.R.C.S.I., I.M.S. (ret.).

SMITH.—On Oct. 6th, at Ambleside, Charles Edwin Smith, M.R.C.S. Eng., late of Stretford.

WILKINSON.—On Oct. 8th, at Swindon, Wilts, St. John Wilkinson, F.R.C.S. Edin., D.P.H., retired Major, R.A.M.C.

WILSON.—On Oct. 5th, at Bourton, Dorset, after a long illness, Archer Herbert Wilson, M.A., M.B. Camb., late of the West African Medical Staff, South Nigeria.

YOUNAN.—On Oct. 11th, at Minehead, Arthur Charles Younan, M.B. Edin., retired Lieut.-Col., I.M.S., late Med. Off., 25th Punjabs, Rawal Pindi.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

MORE HOSPITALS FOR SOUTH SHIELDS.—In a special report to the town council, Dr. Campbell Lyons, the medical officer, recommends the erection of a new isolation hospital, a maternity hospital, and a new municipal clinic. It is suggested that assistance for the schemes should be sought from the Commissioner for Special Areas.

NOTES, COMMENTS, AND ABSTRACTS

THE QUETTA EARTHQUAKE

THE medical problems of the earthquake at Quetta were among the most formidable of all the problems which that disaster involved. Most fortunately, the earthquake which destroyed the city and the Royal Air Force lines with great loss of life largely spared the cantonments and left 12,000 able-bodied, disciplined troops available for rescue work. Every available army lorry and vehicle was sent straight to the devastated areas full of troops, and was then used to augment the ambulance services sent down by the British and military hospitals. A relief headquarters was opened in the ruined Quetta Club in the early morning, and the rescue work was at once organised into areas by General Karslake; the police were all dead and there was no civil machinery left. The city and the Civil Lines were subdivided into unit allotments, medical aid posts were arranged, and ambulance services organised. Extra medical assistance was requisitioned from India, and the local medical staffs of the two military hospitals, assisted by civilian doctors, carried on. The civil and missionary hospitals had been destroyed and the military hospital buildings had been rendered unsafe, so the verandahs and tents were used instead, with stretchers and mattresses instead of beds. Before dawn a hundred officers' wives had reported for duty as emergency nurses. The brunt of the rescue work fell inevitably on the medical profession, and they rose to the occasion superbly; how well is graphically related in the official account just published by the Government of India.

Many of those who worked without ceasing for the next week had already been injured; one doctor reported for duty immediately on his rescue after lying buried in the ruins of his bungalow for several hours. The Indian Military Hospital, with seven doctors, admitted 4500 injured in the first two days; the staff performed 450 major operations, gave 1200 anæsthetics, and set 300 fractures. In the first fortnight nearly 25,000 patients were treated. Fortunately there was a full supply of all medical and surgical necessities.

The problems of sanitation were pressing, and the presence of human and animal corpses became a deadly menace; but so efficient were the methods adopted that no epidemic broke out. The task of the rescuers was immensely lightened by headquarters, for the Commander-in-Chief at once put all the resources of the Army in India at their disposal. Officers, nurses, and medical stores were immediately sent to Quetta by air; three sections of a field ambulance from Waziristan and two sanitary sections from the Eastern Command were mobilised and sent to Quetta, and six tons of medical stores were dispatched from various centres in India. The Royal Air Force, with the Viceroy's own aeroplane, the *Star of India*, flew backwards and forwards from June 1st to the 19th, flying 775 hours in trying weather conditions. They conveyed, besides medical personnel, over 12,000 lb. of medical stores and tinned goods, 4300 lb. of clothing, an X ray apparatus and a wireless set, and evacuated 99 adults and 41 children. The Punjab Government sent doctors, nurses, and medical assistants, and looked after refugees who arrived in the province, as quickly as possible, with large supplies of stores, and the Punjab Red Cross organisation sent bandages and clothing of all kinds. A strong contingent of Boy Scouts left for Quetta at once, and a private medical aid detachment was taken from Multan by a public-spirited Indian. Between ten and fifteen thousand Punjabi refugees returned to their province during the fortnight after the earthquake. The Mayo Hospital at Lahore was expanded to accommodate hundreds of cases of injury; the ordinary hospital staff was reinforced by voluntary helpers, and rest camps were established at most of the large towns. The response from the public in the way of personal service, gifts of money, clothes, and food was remarkable, and Indian ladies of good position came forward to help in hospitals and first-aid stations. The Red Cross Association, St. John Ambulance, and the Boy Scouts Association did excellent work.

The public health commissioner, after examining the position, reported that immediate large-scale operations were to be deprecated owing to the danger to health which the simultaneous exhumation of large numbers of bodies would cause. It was, however, proposed that the main shopping areas should be salvaged and the broader thoroughfares cleared. This was done, and salvage was also carried out in a certain number of shops and houses in the city where the damage was small. A completely organised labour corps of 2000 men set to work to clear the streets. During these excavations hundreds of bodies were dug up, bearing the appearance of having been killed outright by the first shock. An extraordinary story arose that a sweetmeat seller had dug his way out of his ruined house after 47 days' imprisonment, but this was not confirmed. If Quetta is to be rebuilt, the task will be an enormous one, but the Government will certainly not again employ their servants in the area unless they are satisfied that similar effects from future earthquakes can be prevented.

BIOLOGY IN SCHOOLS

THE movement for the adequate teaching of biology in schools is now being reflected in the production of books designed to facilitate class-instruction. Three that have reached us recently approach the subject from different, but in each case original, points of view.

Mr. Palmer makes a definite break away from the traditional text-book of elementary biology.[1] Abandoning completely the "type" system the author has endeavoured to give a general idea of the manner in which animals and plants function, the various functions being discussed separately. Hitherto elementary physiology has been illustrated mainly from plants. The suggestions given here for practical work on animals are welcome. The second half of the book deals briefly with the main characteristics of the principal groups of organisms with the minimum of anatomical detail. Two concluding chapters deal with Evolution and Heredity and with scientific method. Mr. Palmer is obviously an enthusiast and his book is inspiring. Sometimes, however, he betrays a certain lack of understanding of the mind of the child for whom he is writing. His manner savours a little of the well-informed lecturer trying his hand at school teaching and much interested in the experiment. In some places—e.g., in his analysis of the chemistry of muscle contraction—he confuses the issue with unnecessary detail. At other times, as when stating the functions of the ductless glands and of the chromosomes, he forgets that such facts are of little interest without some mention of the evidence on which they are based. It is doubtful also whether the final chapter on the methods of science will evoke much response. The nature of induction, hypotheses, &c., should be self-evident from the rest of the book. Few children would interest themselves in these principles as abstractions, and clear thinking may even be hindered by a too early attempt to tabulate the methods involved. The author's attitude is clearly mechanistic. Without disputing this point of view, it might be pointed out that a child does not naturally look upon living things in this light, and that some bridge must be built between the common-sense view and the scientific explanations of living things.

[1] Living Things. By Richard Palmer, Lecturer in Education in the University of Liverpool, formerly Assistant Lecturer in Zoology, University College, London. London: George Allen and Unwin Ltd. 1935. Pp. 400. 7*s*. 6*d*.

It is therefore to be regretted that, though the word "organism" is often quoted, there is no note on the meaning of the word nor any discussion of the fundamental problem of organisation.

Until recently the teaching of biology in schools has usually taken the form of dilettante nature study at early stages followed by a course on the anatomy of a series of dead animals in preparation for examinations. It is now generally realised that the main objective of biology in schools should be the study of living animals in their proper environment and that this study can be approached in a scientific manner. There are, however, many technical difficulties to be overcome. To obtain the necessary animals and to keep them in a healthy condition and to devise suitable experiments to illustrate their activities requires time and experience. Mr. Green [1] not only gives some useful information on histological, microscopical, and dissection technique (which can be found elsewhere), but also describes methods of making and maintaining aquaria and vivaria and of feeding various animals. Teachers should welcome a book which brings this much needed information together. It would have been of even greater value had the author included more suggestions for the performing of elementary physiological experiments.

Miss Phillips and Miss Cox start their book [2] by discussing the value of biology in the very earliest stages of education. They point out that biology, as well as the more "exact" sciences, can afford a training in accurate observation and logical reasoning. A passionate interest in living things is natural to a young child, but to widen this interest without destroying it demands the greatest skill on the part of the teacher. Enthusiasm for the subject, though essential, is not enough; it is necessary to understand the minds of children at different ages and to plan a course in such a way that sound knowledge is imparted while interest is maintained. Many hints are given in this book which should prove of value to teachers, and practical suggestions are made for courses in class and field work throughout the year for children of different ages.

DR. (BATH) OLIVER

NEXT Thursday the Wine and Food Society meets in Bath, and one of its pleasant duties is to unveil a memorial to Dr. William Oliver, F.R.S., inventor of the famous biscuit. Dr. Oliver was one of the founders of the Bath Royal Mineral Water Hospital, and testimony not only to his medical skill but to his many interests and his literary aptitude is to be found in the letters of his contemporaries. Though no doubt these polite accomplishments appeal to the members of the Wine and Food Society it is his work as an innovator that they delight to honour. Shortly before his death in 1764 he confided the recipe of the biscuits to his coachman, Atkins by name. He also gave the man £100 and ten sacks of the finest wheaten flour; and on this foundation Atkins opened a shop in Green-street and soon acquired a large fortune from the sale of "Bath Olivers."

EXAMINATION PAPERS EXAMINED

THE man on the job may be supposed to know when a tool is missing, and Dr. Mitchell Heggs tells us in the preface to his collection of papers for the London M.B. finals [4] that he realised the need for such a book when he was working for this examination. The questions, which are taken from papers set during the years 1920–35, are classified under the general headings of surgery, obstetrics and gynæcology, medicine, forensic medicine, public health, and pathology, and are further arranged in suitable subdivisions. Each is dated, so that the statistically minded may estimate its chances of revival; but Dr. Heggs, alas, attempts neither prophecy nor comment. Needless to say his book as a whole tends to emphasise the combatant rather than the constructive side of medical studies. But no doubt it will sometimes give substantial aid towards the defeat of the London examiners.

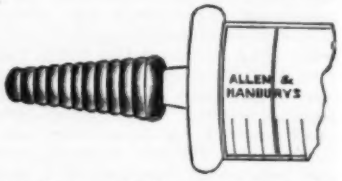
[1] Zoological Technique. By T. L. Green, B.Sc., F.R.E.S., Lecturer in the Department of Education, University of Bristol. London: Allman and Son Ltd. Pp. 118. 5s.

[2] The Teaching of Biology. By M. E. Phillips, B.Sc., formerly Biology Mistress, Godolphin and Latymer School; and L. E. Cox, B.Sc., F.L.S., formerly Lecturer in Biology, Greystoke Place Training College. London: University of London Press Ltd. 1935. Pp. 155. 4s. 6d.

[4] The M.B., B.S. Finals. By F. Mitchell Heggs, M.B., M.R.C.S., house surgeon, casualty officer, and resident anæsthetist, St. Thomas's Hospital. London: J. and A. Churchill Ltd. 1935. Pp. 95. 6s.

A USEFUL ADAPTER

DR. OLIVER WALKER writes: It may interest some of your readers to know that they can obtain an adapter making an air-tight joint between a "Record" syringe and a gum elastic or rubber catheter of any size. It will be found of use in blowing through a blocked catheter in situ or for irrigation, aspiration, and the like. The adapter, which is made of chromium-plated metal, can be obtained from Messrs. Allen and Hanburys Ltd.



INSURANCE AGAINST PROLONGED ILLNESS

A BENEFICIARY writes: "Will you allow me to advise every medical practitioner and dentist to insure with the Medical Sickness Annuity and Life Assurance Society, which has been founded by medicals for the benefit of their fellow medicals with a board of directors consisting of doctors. In 1925 I suffered from infective endocarditis, pulmonary embolism, and other complications which prevented me from working, and during the whole of this time on the first day of the month I have received a cheque. Had I insured elsewhere under an annual contract I should have been paid for a year, after which the company would not have taken any further risk and it would not have been possible for me to insure again. If all medical and dental students were to insure with this society immediately they are qualified—and the younger they are the smaller is the premium—they will find their troubles lessened, if like myself they contract a prolonged and incurable disease. If the sickness is a short one the benefit will help to pay the locum tenent's fees."

NEW PREPARATIONS

MONOTREAN, which is made by Luitpold-Werk, Munich, and newly put on the market in this country by Medical Laboratories Ltd., 40, Pall Mall, London, S.W.1, is a preparation of papaverine and quinine designed to relieve vertigo. Each tablet weighs 0·2 g. and contains 0·04 g. of papaverine. The remedy is recommended both for Ménière's disease and for giddiness associated with organic lesions; for Ménière's disease the suggested dose is one tablet three times daily after meals for 6–8 weeks, and subsequently one tablet twice a day until the attacks cease. Good results in 41 cases were reported by A. E. Lampé in 1930 (Münch. med. Woch., 1930, lxxvii., 1630) and he noted no unpleasant effects save noises in the ear produced in some cases by quinine at the beginning of treatment. One patient had used the remedy as a preventive daily for six years. Since papaverine is an opium derivative the question of possible addiction arises. The belief expressed in text-books, however, is that this alkaloid does not produce either tolerance or habituation, and its toxicity is low. It is mildly narcotic and analgesic, and relaxes plain muscle, including the arterioles.